ADAPTIVE®
Adaptive Micro Systems LLC

Troubleshooting Guide for AlphaEclipse 2500, 2600, and 3500 signs

How is your sign connected to the messaging computer? (see back page)

Check one:

☐ SERIAL ☐ MODEM ☐ WIRELESS

Common sign problems

Problem	Possible causes	Recommended solutions
Messages sent from AlphaNET software do not appear on sign(s).	• AlphaNET software not set up correctly. • Messaging computer wiring/interface problem. • Power not supplied to sign. • Sign wiring/interface problem. • Sign DIP switches not set properly. • Improper network termination. • Sign damaged.	For signs using a serial connection (RS485 wiring), see page 3. For signs using a modem, see page 4. For signs using a wireless transceiver, see page 5.
Temperature displayed on sign is not accurate.	• Temperature probe not connected properly. • Temperature probe not mounted correctly. • Temperature probe not adjusted using AlphaNET software. • Faulty temperature probe.	See page 6.
Temperature displayed on two signs is different.	• Temperature probe not connected properly. • Signs not connected as Master/Slave. • Faulty temperature probe.	See page 6.

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Contents

Recommended solutions

Problem: "Messages sent from AlphaNET software do not appear on sign(s)" — serial (RS485 cable)

To try to fix this problem, follow the procedures below:

Step	Procedure	Description	Results
1	PC-TO-SIGN CHECK (page 7)	Checks to see if there is communication between the messaging computer and the sign(s).	• If this procedure fails, try PC COM PORT. • If this procedure succeeds, try ALPHANET MESSAGE.
2	ALPHANET MESSAGE (page 9)	Attempts to send a simple message from AlphaNET software to the sign(s).	• If this procedure fails, try PC COM PORT. • If this procedure succeeds, try creating and sending other messages.
3	PC COM PORT (page 11)	Tries to determine the type of COM ports on the messaging computer.	• If this procedure fails, try SIGN RESTART. • If this procedure succeeds, try PC CHECK-RS485.
4	PC CHECK-RS485 (page 16)	On the messaging computer, tries to determine if there are any faults in the RS485 wiring and interface.	• If this procedure fails, try SIGN RESTART. • If this procedure succeeds, try PC-TO-SIGN CHECK again.
5	SIGN RESTART (page 20)	Removes and then reapplies power to the sign(s).	• If this procedure fails, try INSIDE INSPECTION. • If this procedure succeeds, try PC-TO-SIGN CHECK again.
6	INSIDE INSPECTION (page 30)	Visual inspection of the inside of the sign(s) for obvious physical problems (loose wires, water or electrical damage, and so on).	• If there are *no* signs of problems, try SIGN POWER. • If there *are* signs of problems, fix them if possible then try PC-TO-SIGN CHECK again.
7	SIGN POWER (page 23)	Checks to see if power is available to the sign(s) components.	• If this procedure fails, try SIGN FEEDBACK. • If this procedure succeeds, try PC-TO-SIGN CHECK again.
8	SIGN FEEDBACK (page 21)	Using LEDs on the sign, checks to see if there is communication between the messaging computer and the sign(s).	• If this procedure fails, try SIGN CHECK-RS485. • If this procedure succeeds, try PC-TO-SIGN CHECK again.
9	SIGN CHECK-RS485 (page 27)	On the sign, tries to determine if there are any faults in the RS485 wiring and interface.	• If this procedure fails, contact Adaptive Technical Support. • If this procedure succeeds, try PC-TO-SIGN CHECK again.

Problem: "Messages sent from AlphaNET software do not appear on sign(s)" — modem

To try to fix this problem, follow the procedures below:

Step	Procedure	Description	Results
1	PC-TO-SIGN CHECK (page 7)	Checks to see if there is communication between the messaging computer and the sign(s).	• If this procedure fails, try PC COM PORT. • If this procedure succeeds, try ALPHANET MESSAGE.
2	ALPHANET MESSAGE (page 9)	Attempts to send a simple message from AlphaNET software to the sign(s).	• If this procedure fails, try PC COM PORT. • If this procedure succeeds, try creating and sending other messages.
3	PC COM PORT (page 11)	Tries to determine the type of COM ports on the messaging computer.	• If this procedure fails, try SIGN RESTART. • If this procedure succeeds, try PC CHECK-MODEM.
4	PC CHECK-MODEM (page 17)	On the messaging computer, tries to determine if there are any faults in the modem.	• If this procedure fails, try SIGN RESTART. • If this procedure succeeds, try PC-TO-SIGN CHECK again.
5	SIGN RESTART (page 20)	Removes and then reapplies power to the sign(s).	• If this procedure fails, try INSIDE INSPECTION. • If this procedure succeeds, try PC-TO-SIGN CHECK again.
6	INSIDE INSPECTION (page 30)	Visual inspection of the inside of the sign(s) for obvious physical problems (loose wires, water or electrical damage, and so on).	• If there are *no* signs of problems, try SIGN POWER. • If there *are* signs of problems, fix them if possible then try PC-TO-SIGN CHECK again.
7	SIGN POWER (page 23)	Checks to see if power is available to the sign(s) components.	• If this procedure fails, try SIGN FEEDBACK. • If this procedure succeeds, try PC-TO-SIGN CHECK again.
8	SIGN FEEDBACK (page 21)	Using LEDs on the sign, checks to see if there is communication between the messaging computer and the sign(s).	• If this procedure fails, try SIGN CHECK-MODEM. • If this procedure succeeds, try PC-TO-SIGN CHECK again.
9	SIGN CHECK-MODEM (page 28)	On the sign, tries to determine if there are any faults in the modem wiring.	• If this procedure fails, contact Adaptive Technical Support. • If this procedure succeeds, try PC-TO-SIGN CHECK again.

Problem: "Messages sent from AlphaNET software do not appear on sign(s)" — wireless transceiver

To try to fix this problem, follow the procedures below:

Step	Procedure	Description	Results
1	PC-TO-SIGN CHECK (page 7)	Checks to see if there is communication between the messaging computer and the sign(s).	• If this procedure fails, try PC COM PORT. • If this procedure succeeds, try ALPHANET MESSAGE.
2	ALPHANET MESSAGE (page 9)	Attempts to send a simple message from AlphaNET software to the sign(s).	• If this procedure fails, try PC COM PORT. • If this procedure succeeds, try creating and sending other messages.
3	PC COM PORT (page 11)	Tries to determine the type of COM ports on the messaging computer.	• If this procedure fails, try SIGN RESTART. • If this procedure succeeds, try PC CHECK-WIRELESS.
4	PC CHECK-WIRELESS (page 19)	On the messaging computer, tries to determine if there are any faults in the wireless transceiver wiring.	• If this procedure fails, try SIGN RESTART. • If this procedure succeeds, try PC-TO-SIGN CHECK again.
5	SIGN RESTART (page 20)	Removes and then reapplies power to the sign(s).	• If this procedure fails, try INSIDE INSPECTION. • If this procedure succeeds, try PC-TO-SIGN CHECK again.
6	INSIDE INSPECTION (page 30)	Visual inspection of the inside of the sign(s) for obvious physical problems (loose wires, water or electrical damage, and so on).	• If there are *no* signs of problems, try SIGN POWER. • If there *are* signs of problems, fix them if possible then try PC-TO-SIGN CHECK again.
7	SIGN POWER (page 23)	Checks to see if power is available to the sign(s) components.	• If this procedure fails, try SIGN FEEDBACK. • If this procedure succeeds, try PC-TO-SIGN CHECK again.
8	SIGN FEEDBACK (page 21)	Using LEDs on the sign, checks to see if there is communication between the messaging computer and the sign(s).	• If this procedure fails, try SIGN CHECK-WIRELESS. • If this procedure succeeds, try PC-TO-SIGN CHECK again.
9	SIGN CHECK-WIRELESS (page 29)	On the sign, tries to determine if there are any faults in the wireless transceiver wiring.	• If this procedure fails, contact Adaptive Technical Support. • If this procedure succeeds, try PC-TO-SIGN CHECK again.

Problem: "Temperature displayed on sign is not accurate"

To try to fix this problem, follow the procedures below:

Step	Procedure	Description	Results
1	TEMP PROBE CHECK (page 31)	Checks if the temperature probe is operating correctly.	• If this procedure fails, replace the temperature probe and try TEMP PROBE CHECK again. • If this procedure succeeds, then there is no need for further testing.

Problem: "Temperature displayed on two signs is different"

To try to fix this problem, follow the procedures below:

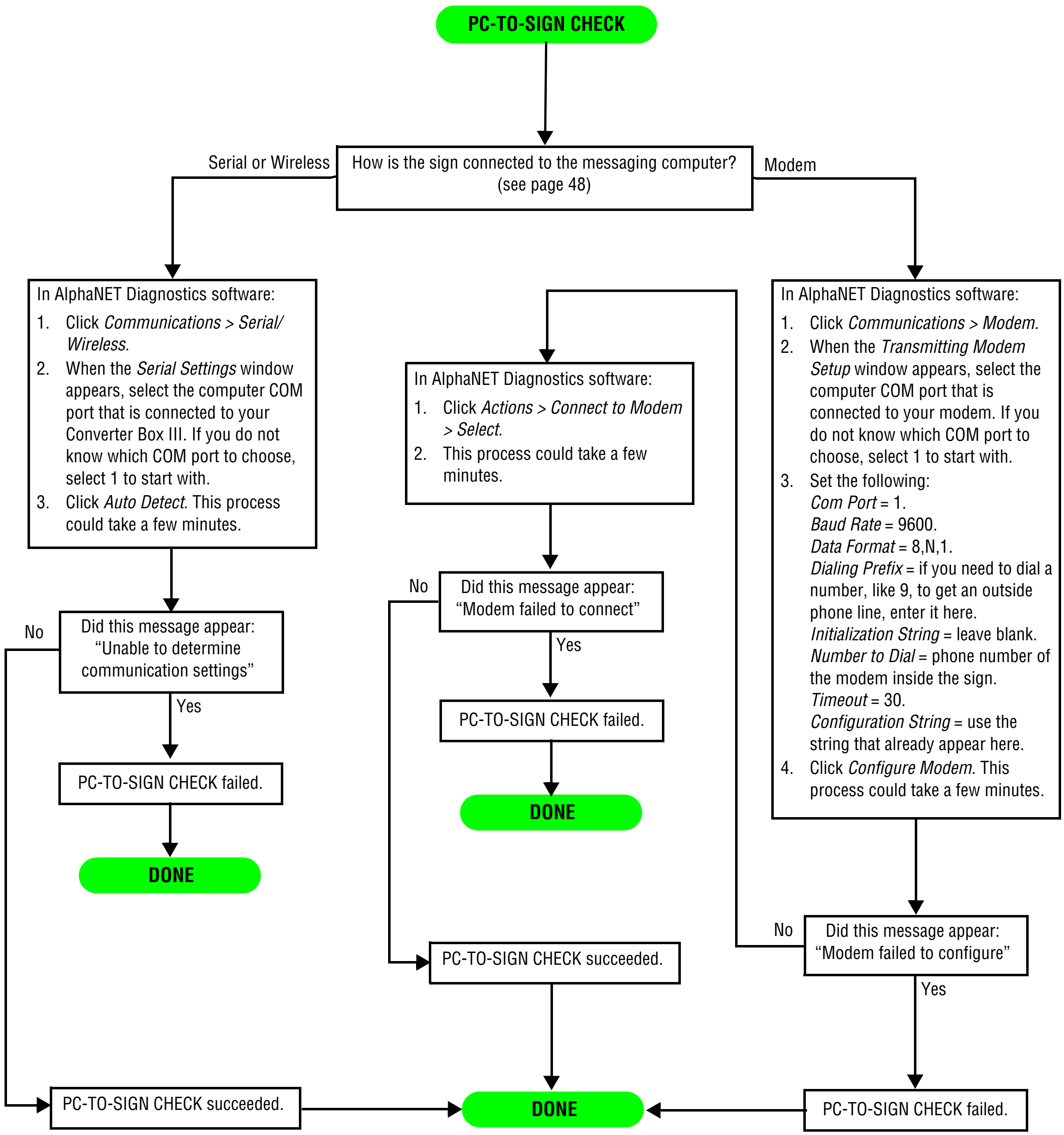
Step	Procedure	Description	Results
1	TEMP PROBE FIX (page 32)	Attempts to correct a faulty temperature probe.	• If this procedure fails, contact Adaptive Technical Support. • If this procedure succeeds, then there is no need for further testing.

Troubleshooting procedures

PC-TO-SIGN CHECK procedure

Description:

- To see if communications exist between a sign and the messaging computer.
- To get information from the sign, such as its address, baud rate, and so on.

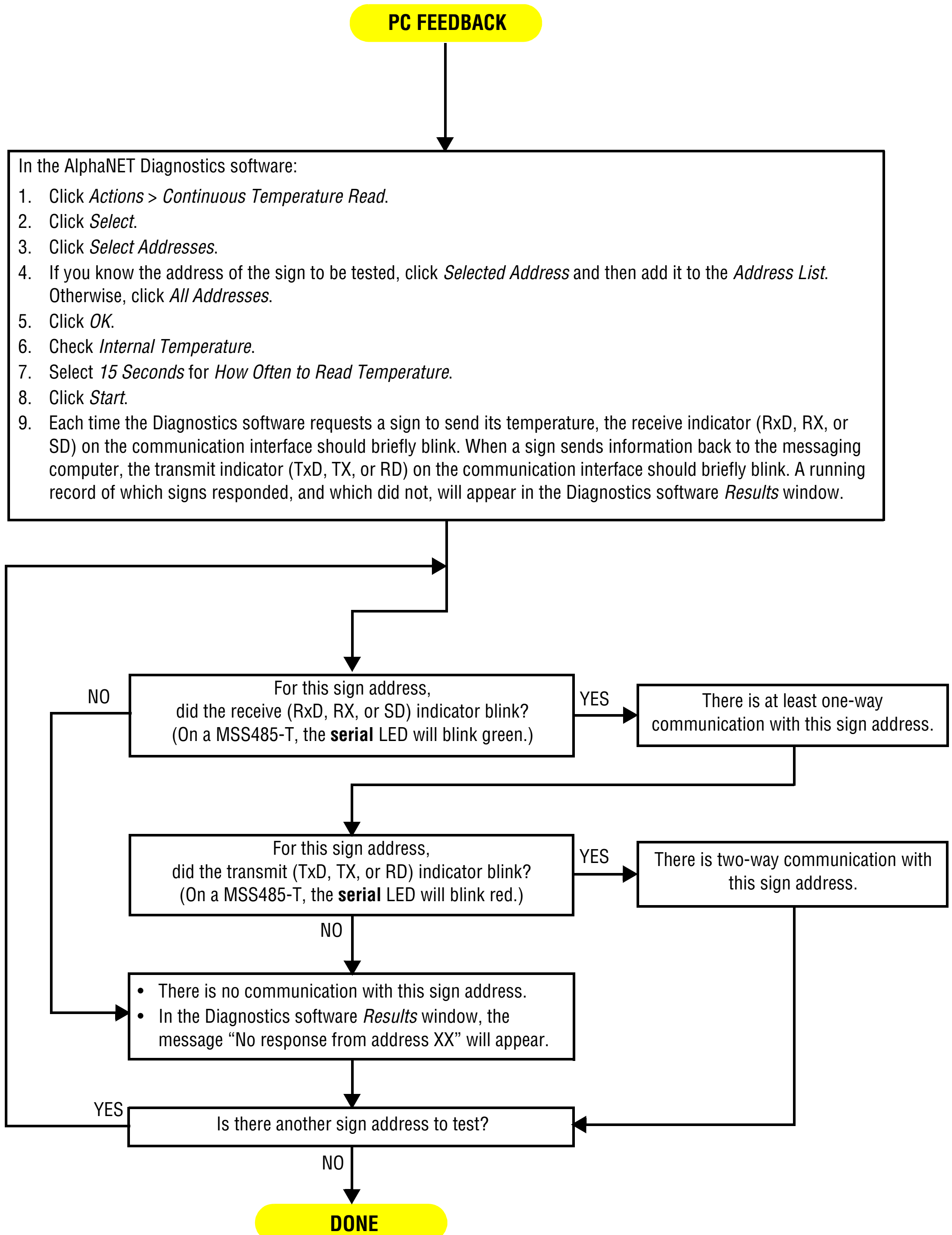


PC FEEDBACK procedure

Description:

- To see if there is one-way, two-way, or no communication between the messaging computer and the sign(s) that should receive messages from this computer.

NOTE: This procedure only works if the messaging computer uses one of the following communication interfaces: Converter Box III, modem, Zeus wireless transceiver, Locus radio modem, Lantronix MSS485-T, or an interface that has separate transmit and receive indicators. For more information, see “LED indicator locations” on page 44.

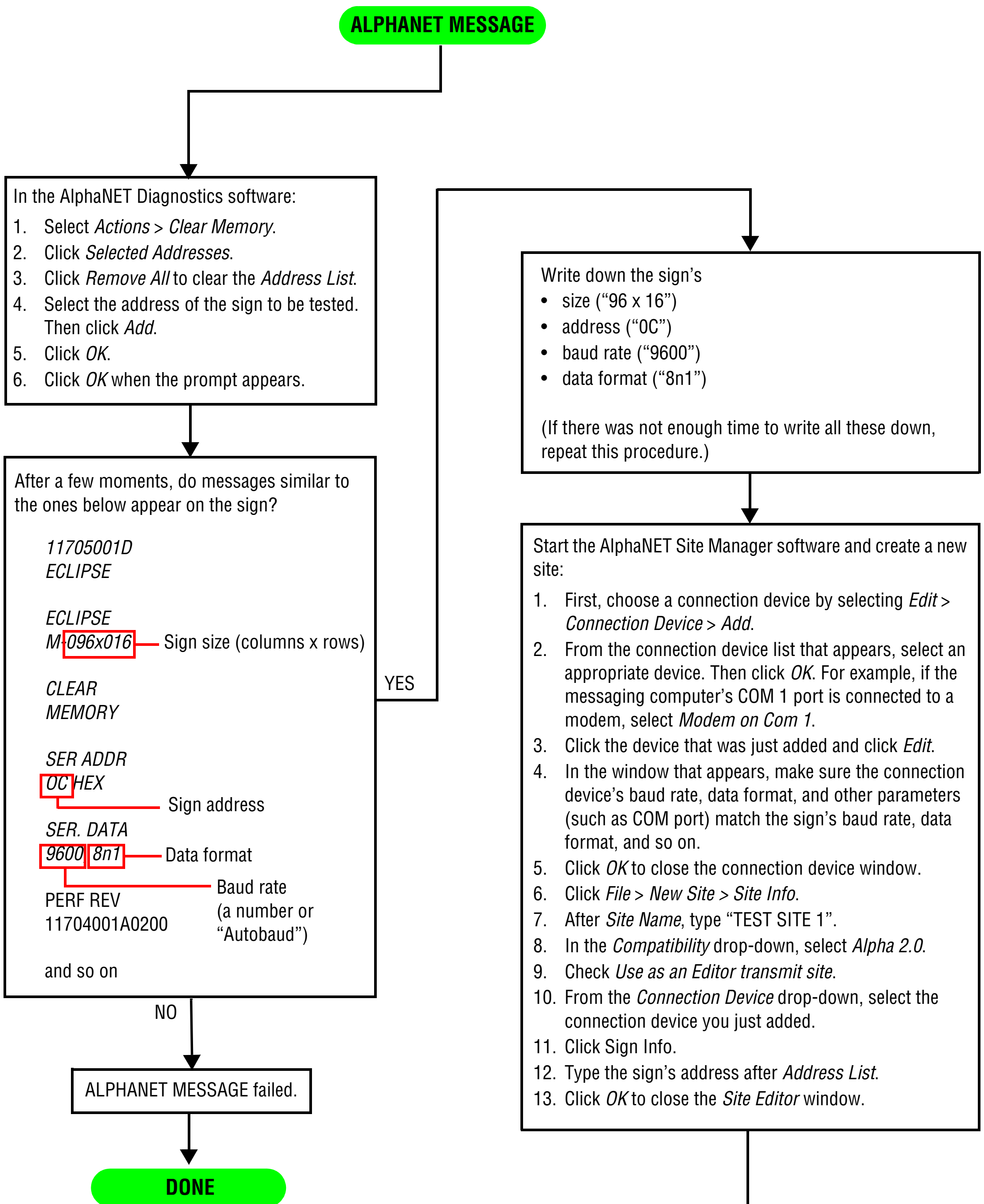


ALPHANET MESSAGE procedure

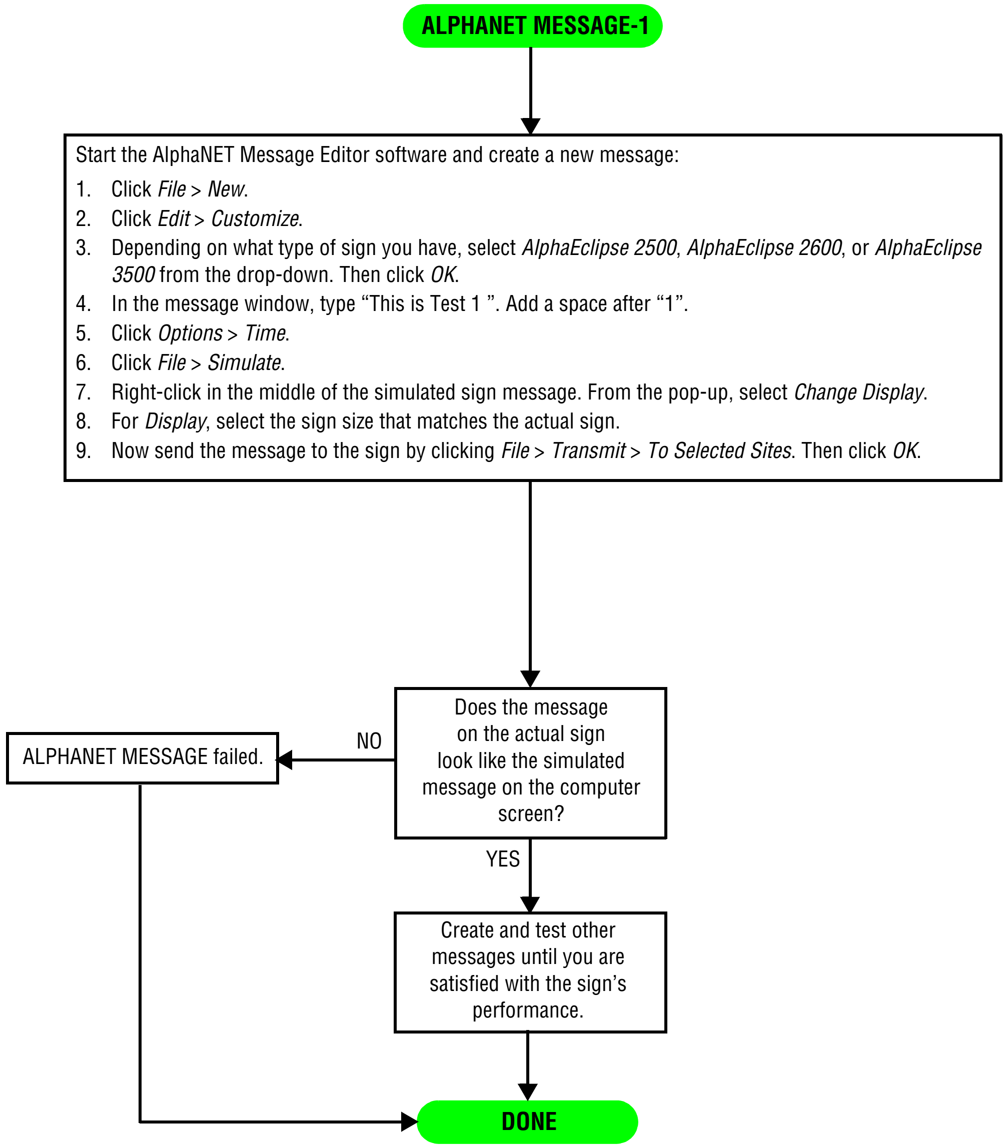
Description:

- To see if a message created using AlphaNET software and simulated on a computer screen, looks the same on an actual sign.

NOTE: This procedure erases all messages currently stored in a sign.



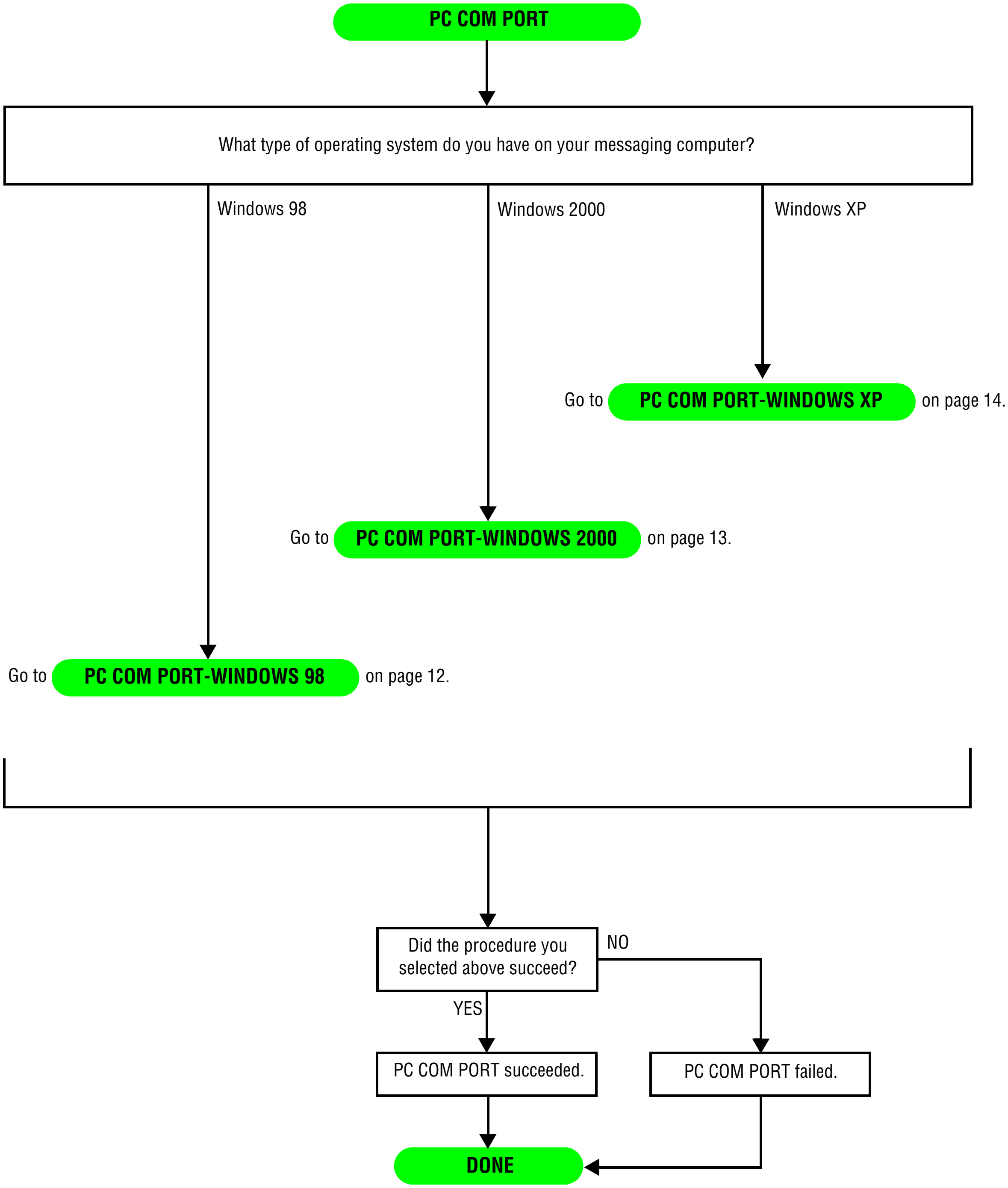
Go to **ALPHANET MESSAGE-1** on page 10.


ALPHANET MESSAGE-1
Start the AlphaNET Message Editor software and create a new message:
1. Click *File* > *New*.
2. Click *Edit* > *Customize*.
3. Depending on what type of sign you have, select *AlphaEclipse 2500*, *AlphaEclipse 2600*, or *AlphaEclipse 3500* from the drop-down. Then click *OK*.
4. In the message window, type “This is Test 1 ”. Add a space after “1”.
5. Click *Options* > *Time*.
6. Click *File* > *Simulate*.
7. Right-click in the middle of the simulated sign message. From the pop-up, select *Change Display*.
8. For *Display*, select the sign size that matches the actual sign.
9. Now send the message to the sign by clicking *File* > *Transmit* > *To Selected Sites*. Then click *OK*.
Does the message on the actual sign look like the simulated message on the computer screen?
NO
ALPHANET MESSAGE failed.
YES
Create and test other messages until you are satisfied with the sign’s performance.
DONE

PC COM PORT procedure

Description:

- To determine the type of COM ports on a Windows 98, 2000, or XP messaging computer.



PC COM PORT-WINDOWS 98 procedure

Description: To determine the type of COM port(s) on a Windows 98 messaging computer.

PC COM PORT-WINDOWS 98

Using the computer mouse, right-click on the *My Computer* icon.

ILLUSTRATION MISSING

Click *Properties* > *Hardware* > *Device Manager*. Does an item named *Ports* appear?

ILLUSTRATION MISSING

NO → PC COM PORT-WINDOWS 98 failed.

YES → Click [+] to expand *Ports*. Is there a *Communications* port like *COM1* below?

ILLUSTRATION MISSING

NO → PC COM PORT-WINDOWS 98 failed.

YES → A

A

Double click a COM port that you have *not* already tested. (In this case, there is only one COM port to test.)

ILLUSTRATION MISSING

Check *Device status*: Is this COM port working properly?

NO → Have you checked all the COM ports?

- YES → PC COM PORT-WINDOWS 98 failed.
- NO → Go to **A** above.

YES → On the back of the messaging computer, locate the COM port that you just checked (an example is shown below, but locations vary):



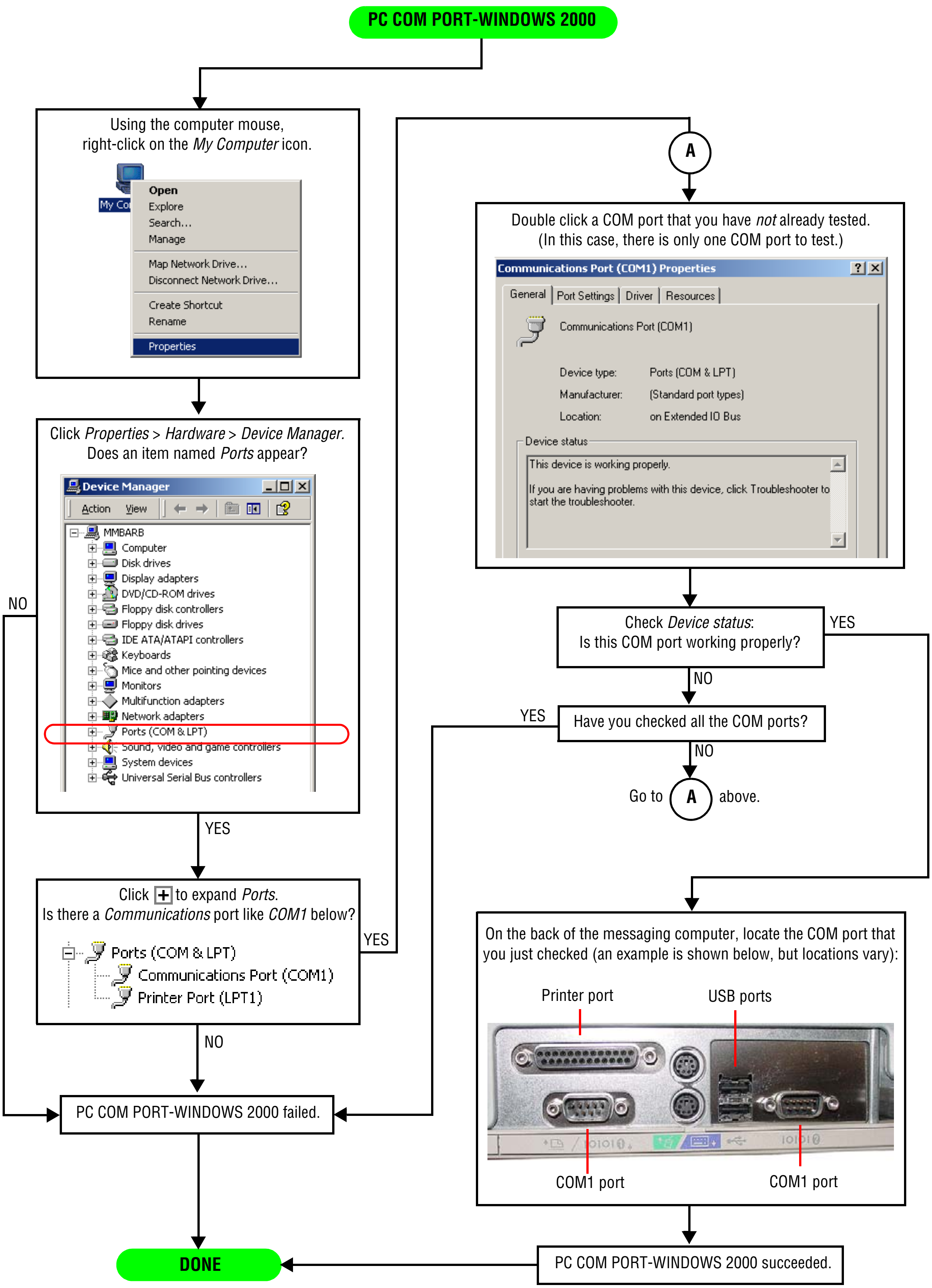
PC COM PORT-WINDOWS 98 succeeded.

PC COM PORT-WINDOWS 98 failed.

DONE

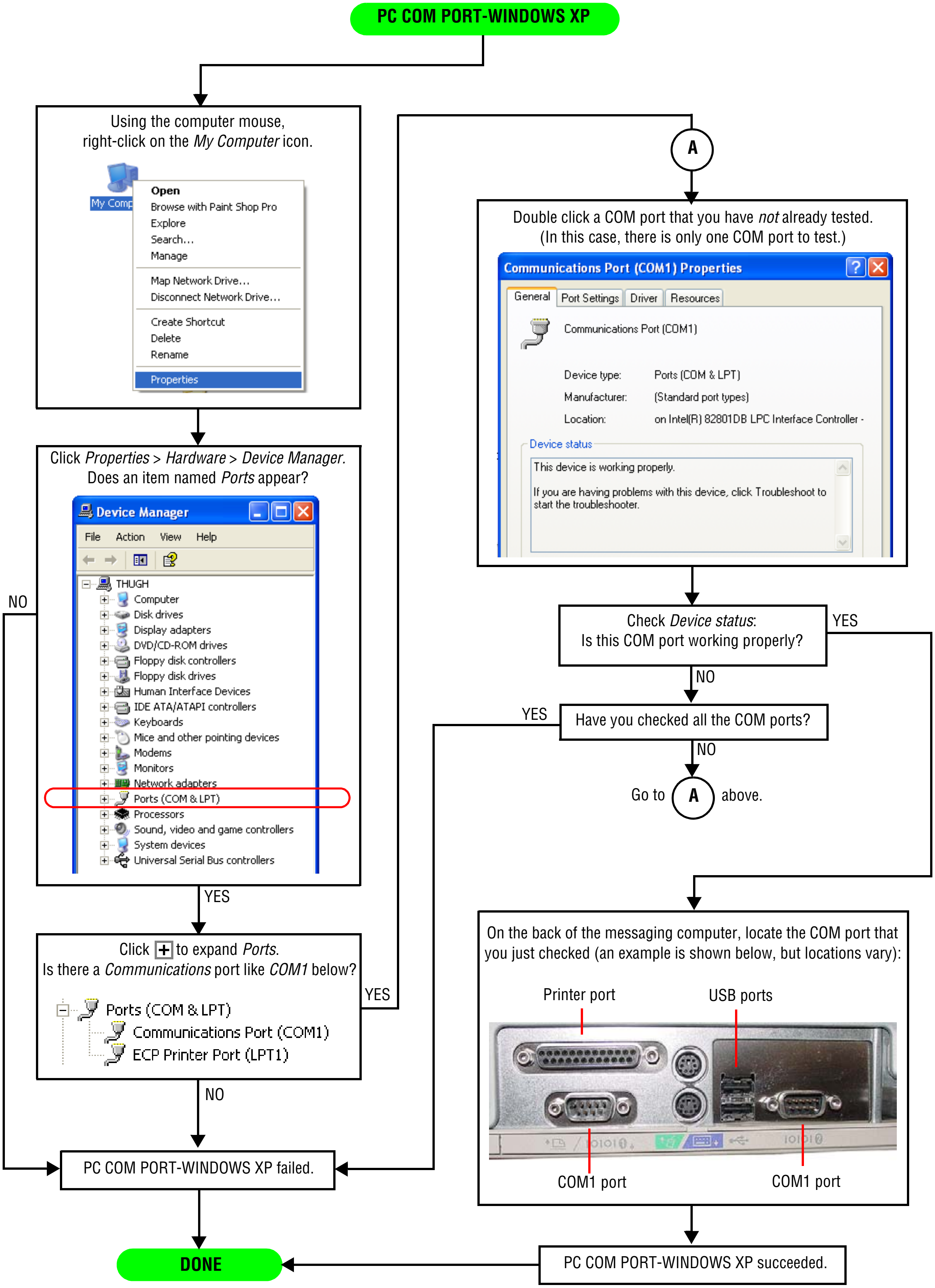
PC COM PORT-WINDOWS 2000 procedure

Description: To determine the type of COM port(s) on a Windows 2000 messaging computer.



PC COM PORT-WINDOWS XP procedure

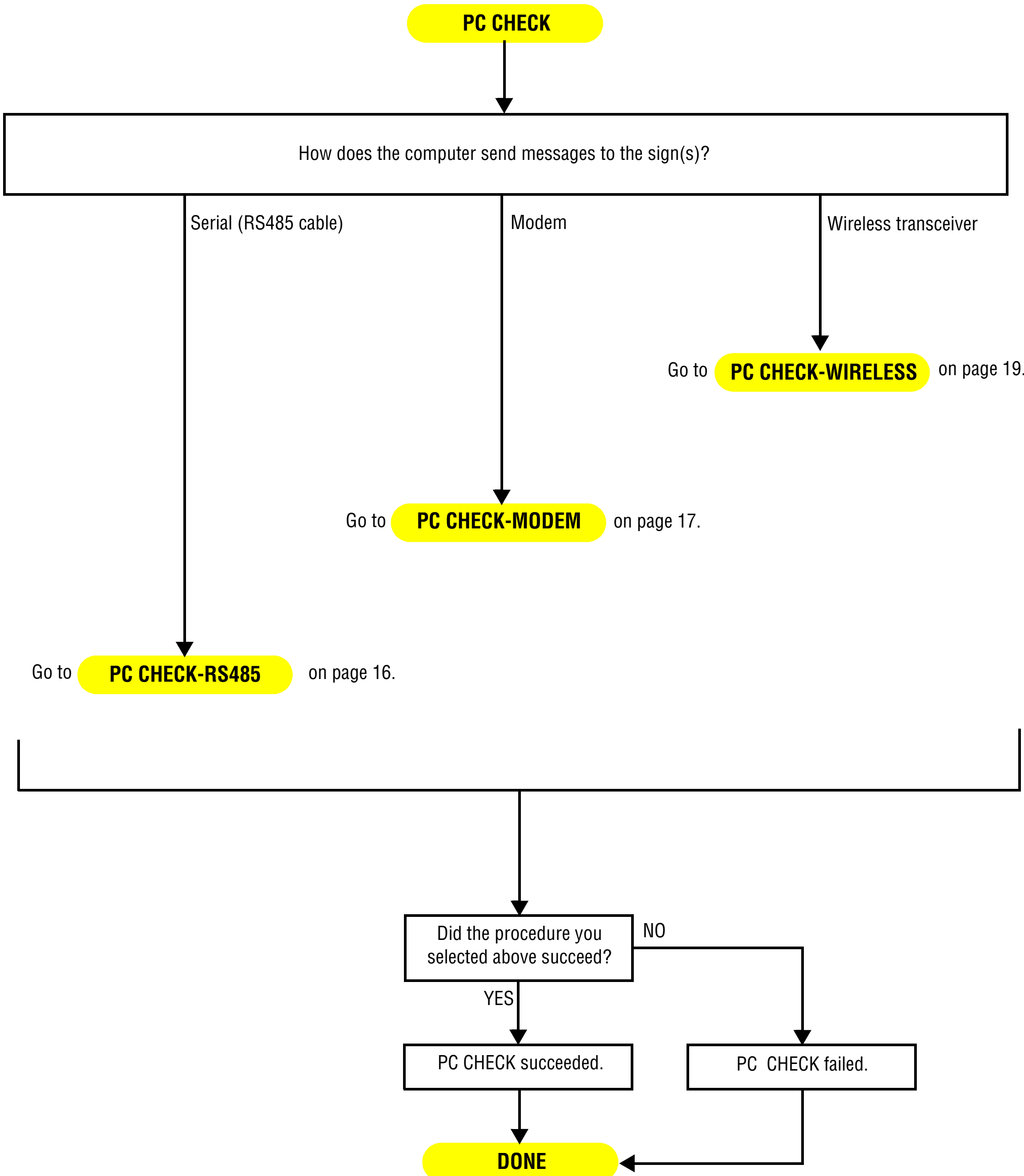
Description: To determine the type of COM port(s) on a Windows XP messaging computer.



PC CHECK procedure

Description:

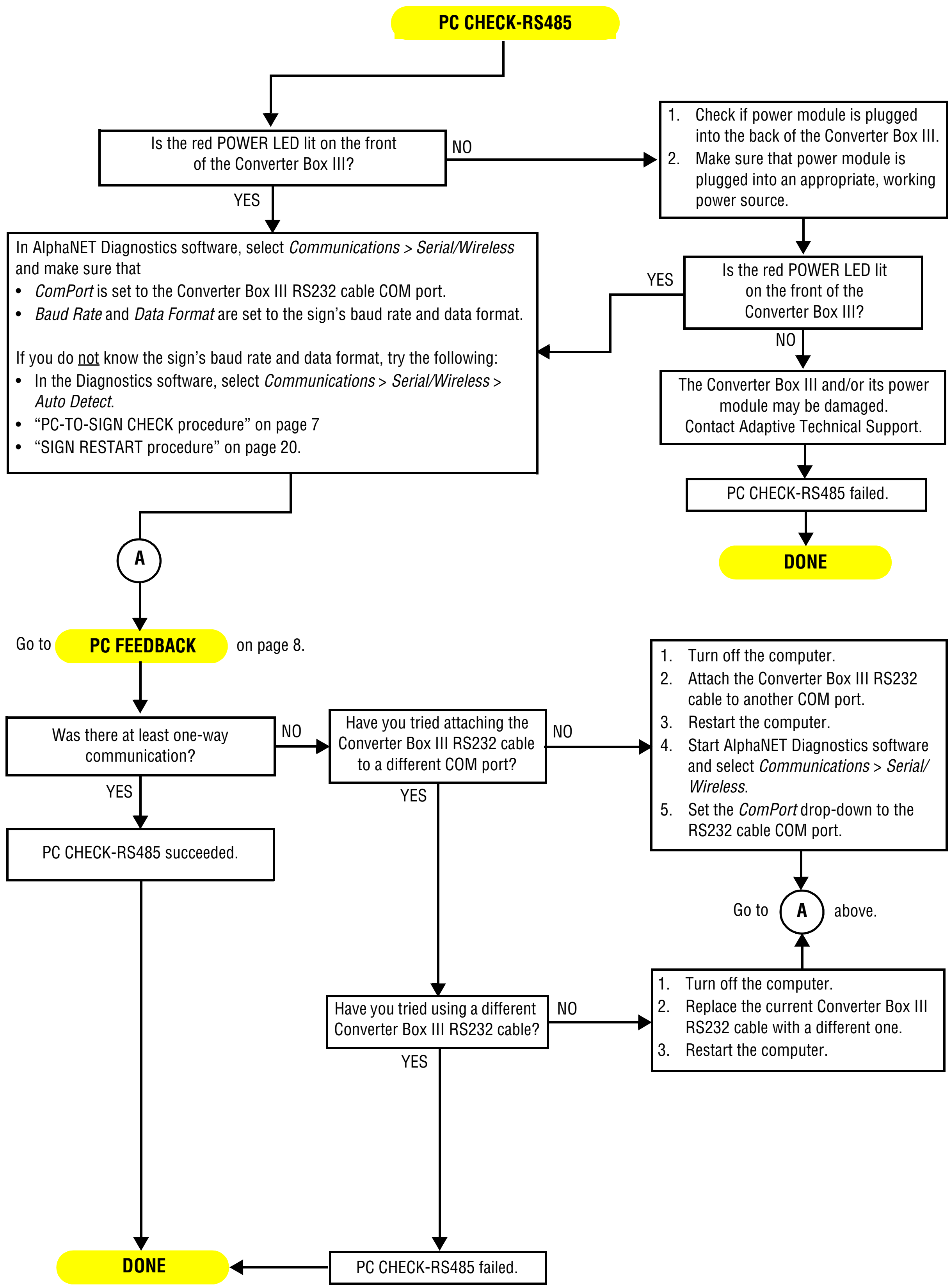
- To determine if there is a fault in the messaging computer's cables and/or interfaces (modem, wireless transceiver, and so on).



PC CHECK-RS485 procedure

Description:

- To see if there is communication between the messaging computer and the Converter Box III.

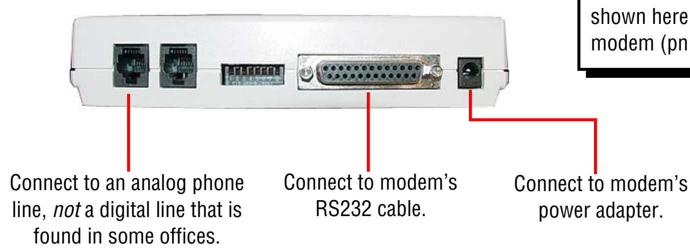


PC CHECK-MODEM procedure

Description:

- To see if there is communication between the messaging computer and a modem.

PC CHECK-MODEM



The transmitting modem shown here is a USR modem (pn 1088-9301).

Is the modem's RS232 cable connected to one of the computer's COM ports?

- NO → (A) →
  1. Turn off the computer and modem.
  2. Attach the modem's RS232 cable to a COM port.
  3. Restart the computer and modem.
  4. Start AlphaNET Diagnostics software.

  → Is the modem's **CS** LED lit?
  - YES → go to the AlphaNET Diagnostics step below.
  - NO → The modem or its power module may be damaged. Contact Adaptive Technical Support. → PC CHECK-MODEM failed. → **DONE**
- YES →

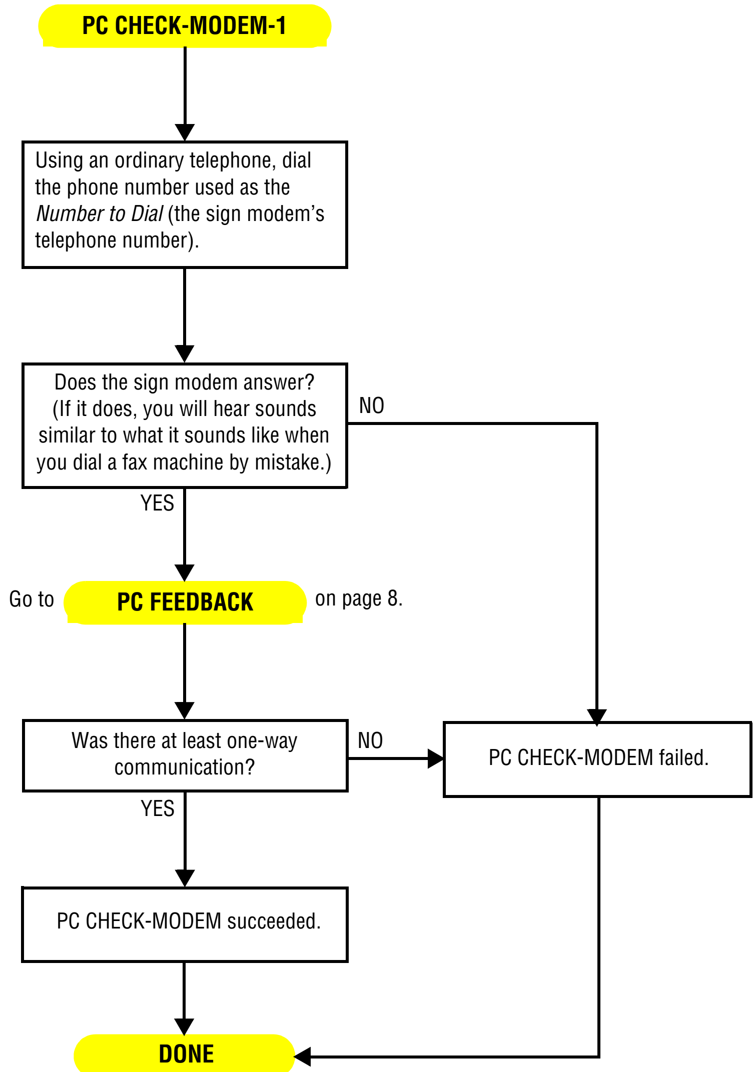
In AlphaNET Diagnostics software, select *Communications > Modem* and make sure that

- *ComPort* is set to the modem cable COM port
- *Baud Rate* is set to *9600*.
- *Data Format* is set to *8N1*.
- *Number to Dial* is set to the sign modem's telephone number.
- *Timeout (in Seconds)* is set to *30*.
- *Configuration String* is set to *AT&H0&R1&B1&N6&Y0&W0*.

Click *Configure Modem*.

Does the message "Modem Configured Properly." appear?

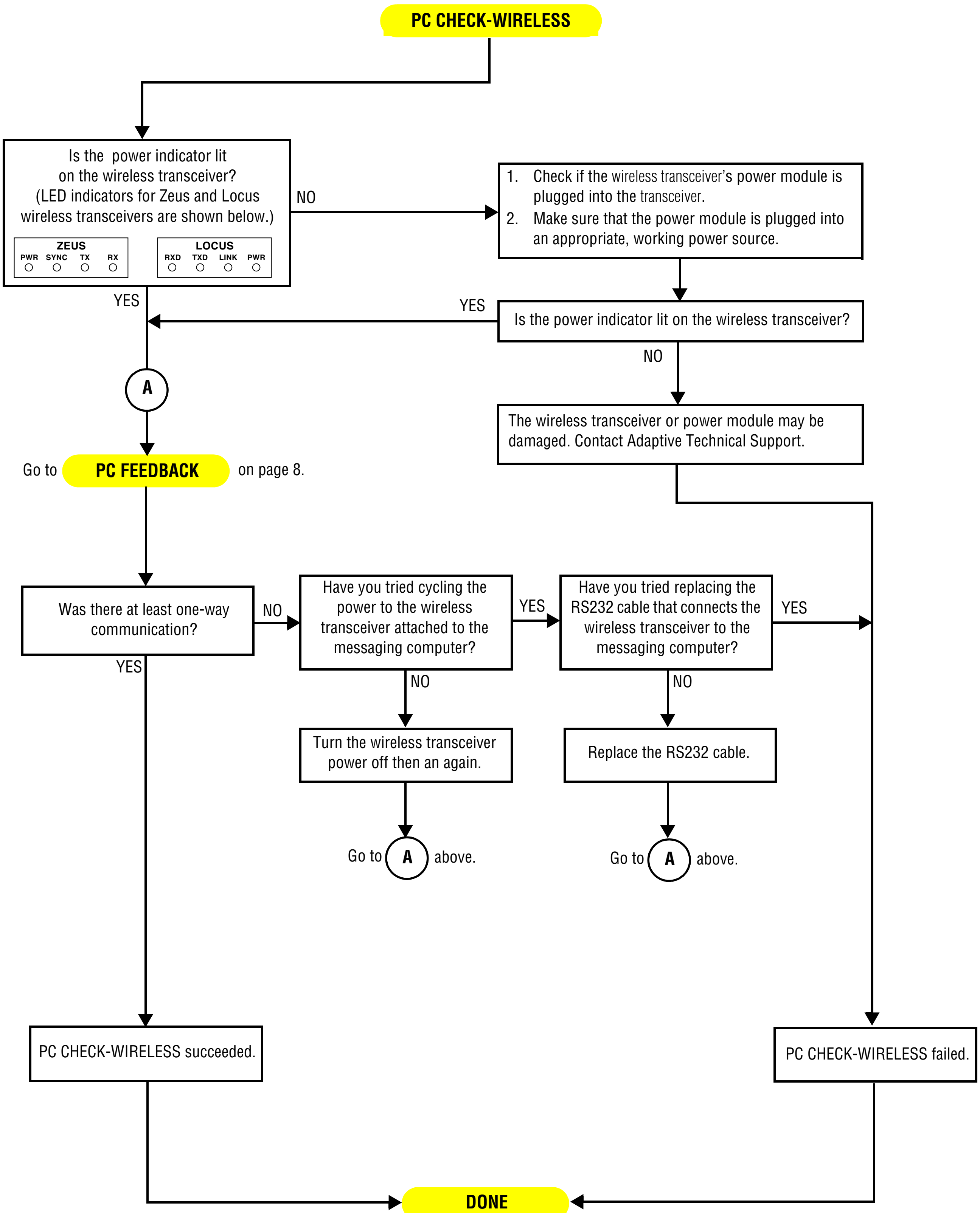
- NO → Have you tried attaching the modem's RS232 cable to a different COM port?
  - YES → PC CHECK-MODEM failed. → **DONE**
  - NO → Go to (A) above.
- YES → Go to **PC CHECK-MODEM-1** on page 18.


PC CHECK-MODEM-1
Using an ordinary telephone, dial the phone number used as the *Number to Dial* (the sign modem's telephone number).
Does the sign modem answer? (If it does, you will hear sounds similar to what it sounds like when you dial a fax machine by mistake.)
NO
YES
Go to
PC FEEDBACK
on page 8.
Was there at least one-way communication?
NO
YES
PC CHECK-MODEM failed.
PC CHECK-MODEM succeeded.
DONE

PC CHECK-WIRELESS procedure

Description:

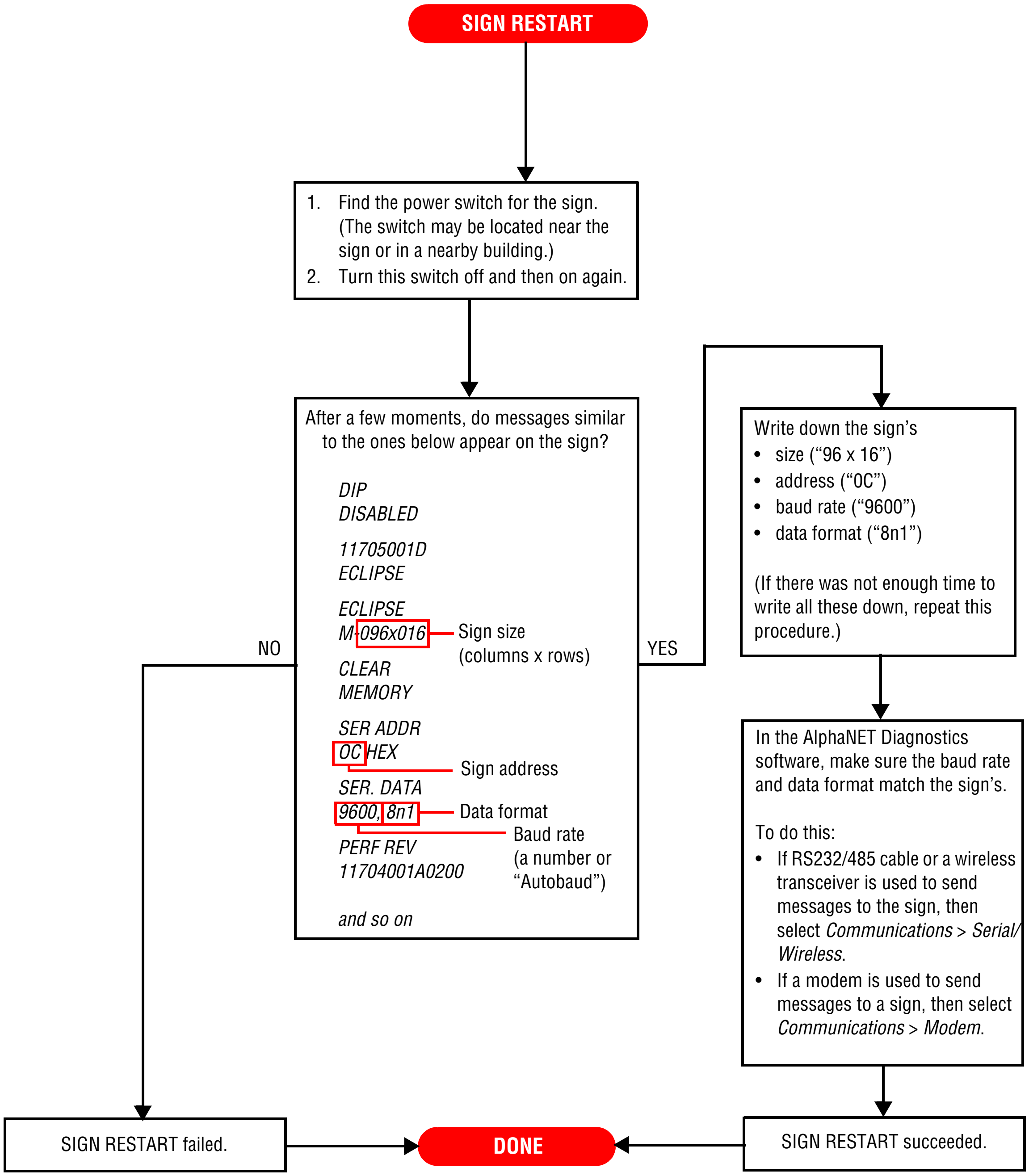
- To see if there is communication between the messaging computer and a wireless transceiver.



SIGN RESTART procedure

Description:

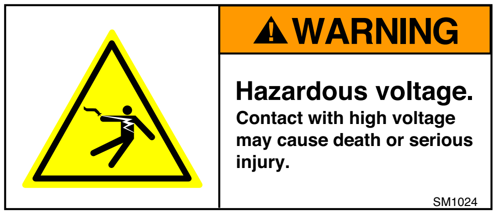
- To get information from the sign like its address, baud rate, and so on by cycling the sign's power.



SIGN FEEDBACK procedure

Description:

- To see if there is one-way, two-way, or no communication between the messaging computer and the sign.



SIGN FEEDBACK

↓

In the AlphaNET Diagnostics software:

1. Click *Actions* > *Continuous Read Temperature*.
2. Click *Select*.
3. Click *Internal Temperature*.
4. Set *How Often to Read Temperature* to *15 seconds* (as short as possible).
5. Click *Start*.
6. Click *Select Address*.
7. If you do not know the sign's address, click *All Addresses*. Otherwise, click *Selected Addresses* and if it is not already there, add the sign's address to the *Address List*.
8. Click *OK*.
9. Click *Start* to being reading sign temperatures.
10. Watch the communication LEDs (shown below) on the sign's controller board. Each time the Diagnostic software requests a sign to send the temperature, the communication LEDs should briefly blink.

RS232 LEDs
RS485 LEDs

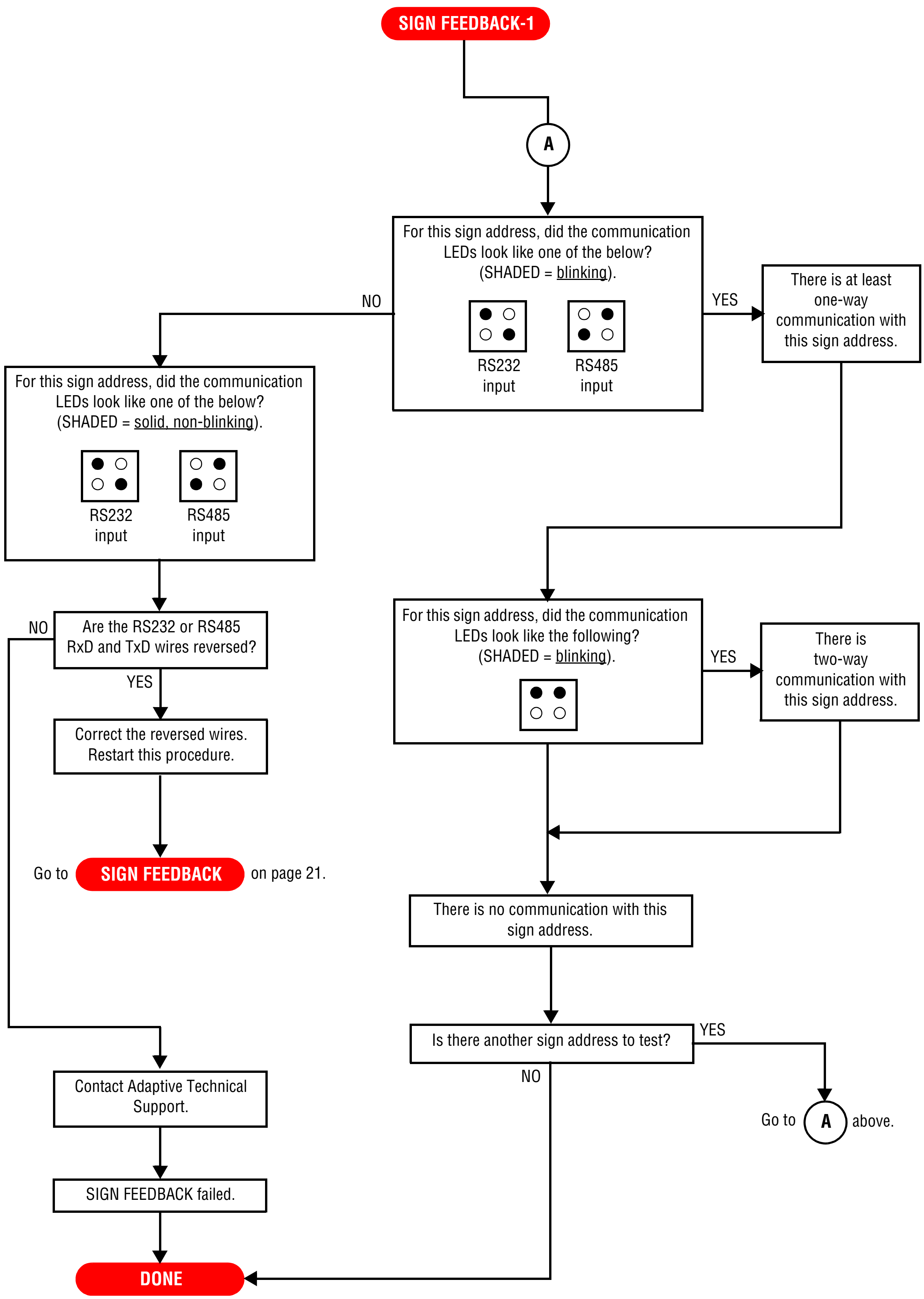
Communication LEDs

- Red = transmitted data (TxD)
- Green = received data (RxD)



↓

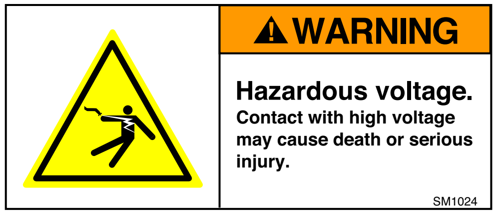
Go to **SIGN FEEDBACK-1** on page 22.

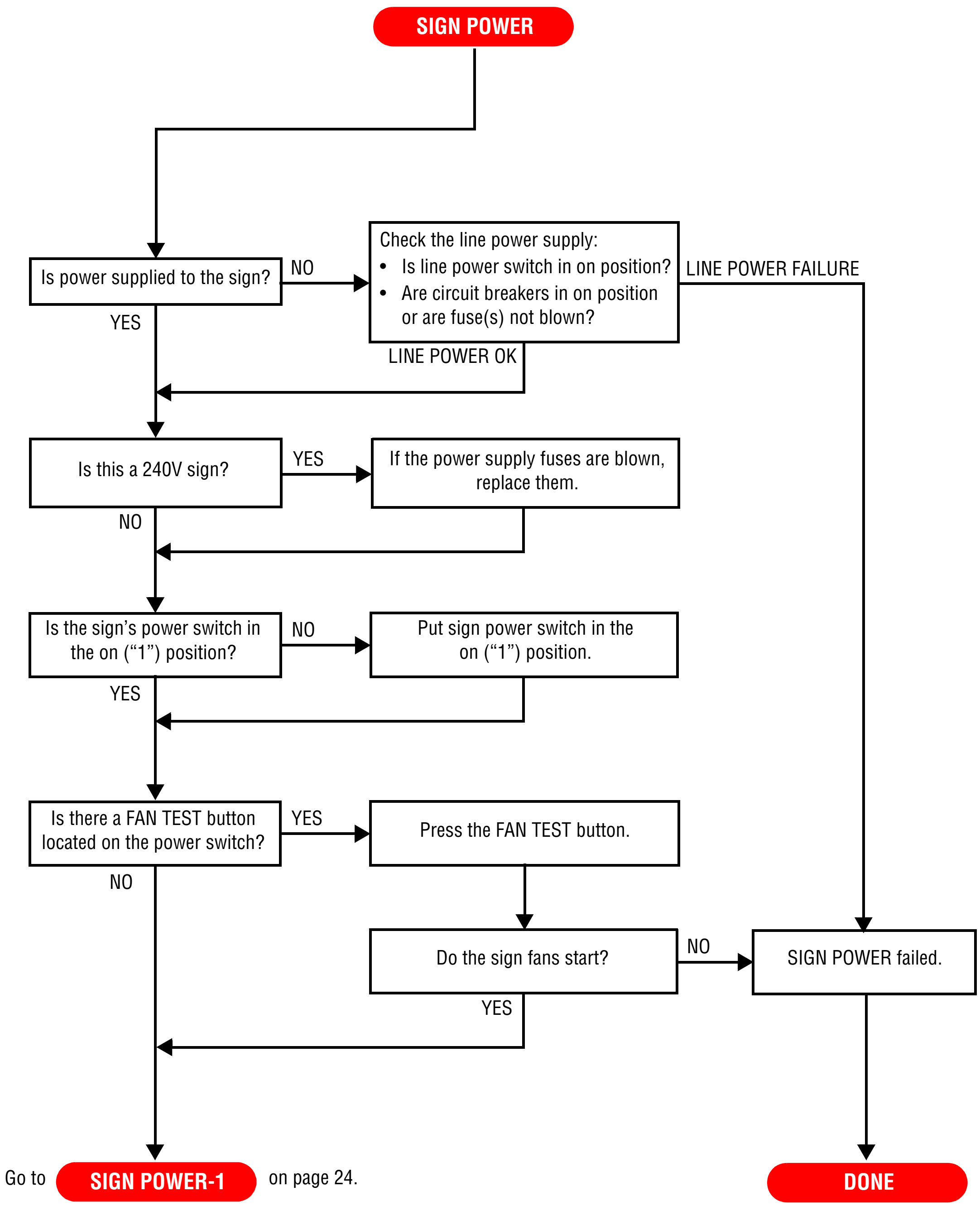

SIGN FEEDBACK-1
A
For this sign address, did the communication LEDs look like one of the below? (SHADED = blinking).
RS232 input
RS485 input
YES
There is at least one-way communication with this sign address.
NO
For this sign address, did the communication LEDs look like one of the below? (SHADED = solid, non-blinking).
RS232 input
RS485 input
NO
Are the RS232 or RS485 RxD and TxD wires reversed?
YES
Correct the reversed wires. Restart this procedure.
Go to SIGN FEEDBACK on page 21.
For this sign address, did the communication LEDs look like the following? (SHADED = blinking).
YES
There is two-way communication with this sign address.
There is no communication with this sign address.
Is there another sign address to test?
YES
Go to A above.
NO
Contact Adaptive Technical Support.
SIGN FEEDBACK failed.
DONE

SIGN POWER procedure

Description:

- To see if power is supplied to the sign and its components (controller board, power supplies, and so on).





SIGN POWER-1

Is the green power LED lit on <u>each</u> power supply?

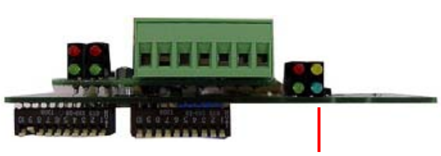


NO → Are *any* power LEDs lit on the power supplies?

- NO → SIGN POWER failed. → **DONE**
- YES → For each power supply that has an unlit power LED:
  - Check the line voltage input wiring for loose or no connections.
  - If this fails, replace the power supply.

  (then continue to the next question)

YES → Is the blue power LED flashing on the controller board?



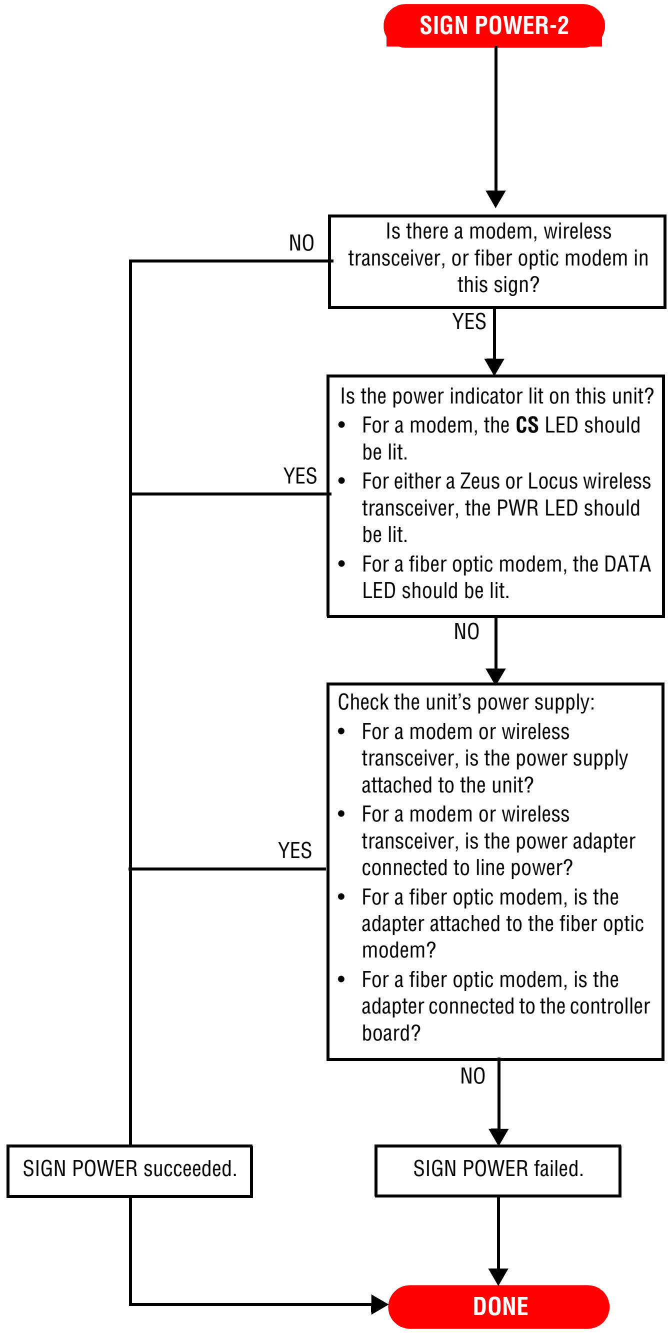
NO → Check 5V power lines to the controller board:

- Are the 5V power lines attached to the controller board?
- Are the 5V power lines connected to a 5V connection terminal?



- NO → SIGN POWER failed. → **DONE**
- YES → Go to SIGN POWER-2 on page 25

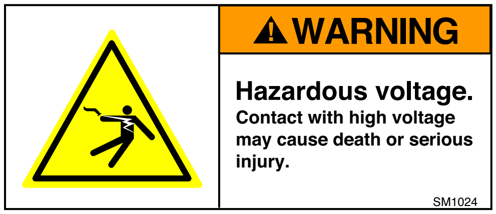
YES → Go to **SIGN POWER-2** on page 25

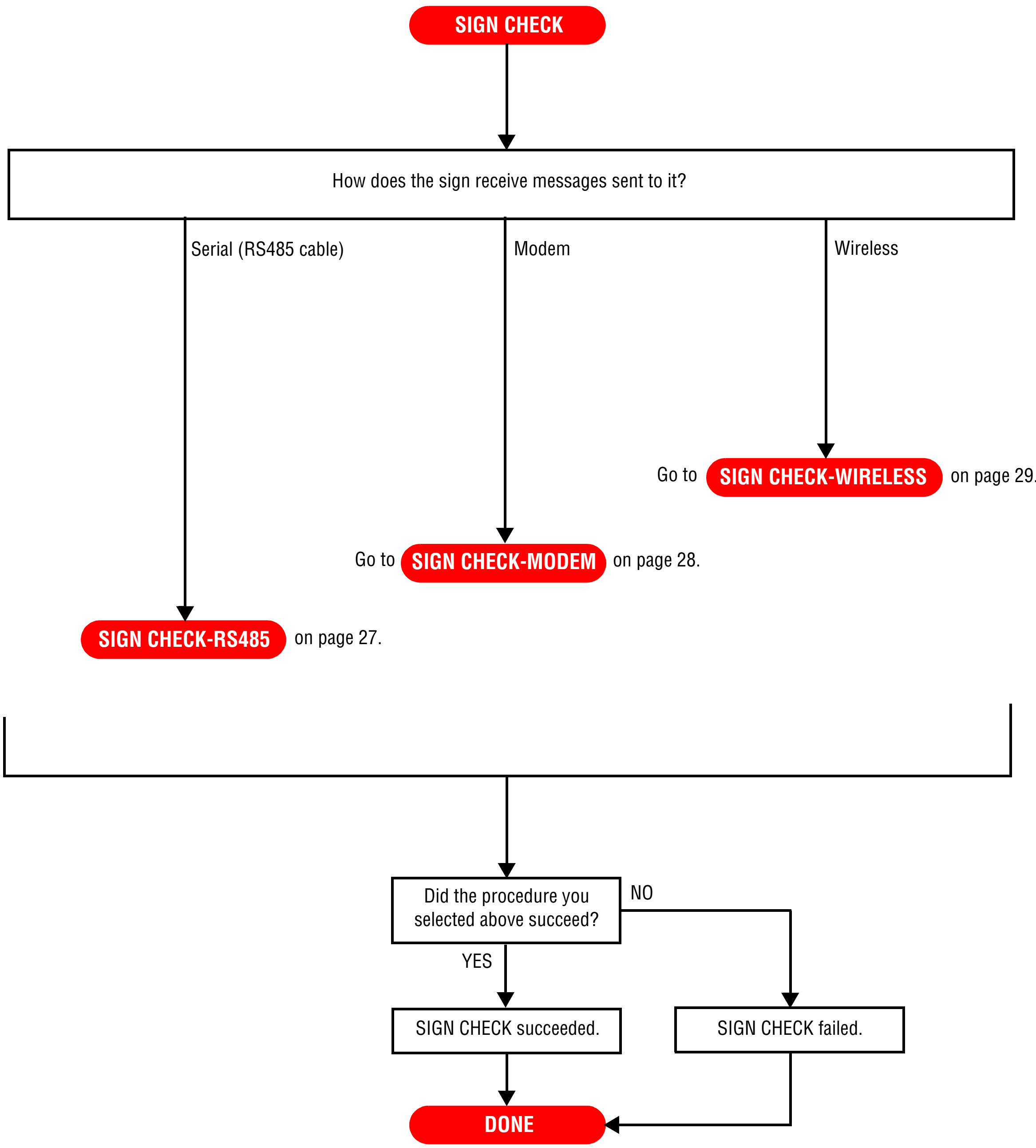

SIGN POWER-2
Is there a modem, wireless transceiver, or fiber optic modem in this sign?
NO
YES
Is the power indicator lit on this unit?
• For a modem, the **CS** LED should be lit.
• For either a Zeus or Locus wireless transceiver, the PWR LED should be lit.
• For a fiber optic modem, the DATA LED should be lit.
YES
NO
Check the unit's power supply:
• For a modem or wireless transceiver, is the power supply attached to the unit?
• For a modem or wireless transceiver, is the power adapter connected to line power?
• For a fiber optic modem, is the adapter attached to the fiber optic modem?
• For a fiber optic modem, is the adapter connected to the controller board?
YES
NO
SIGN POWER succeeded.
SIGN POWER failed.
DONE

SIGN CHECK procedure

Description:

- To determine if there is a fault in the sign's cables and/or interfaces (modem, wireless transceiver, and so on).

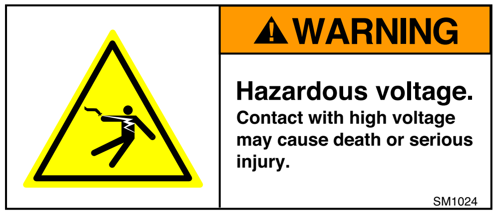


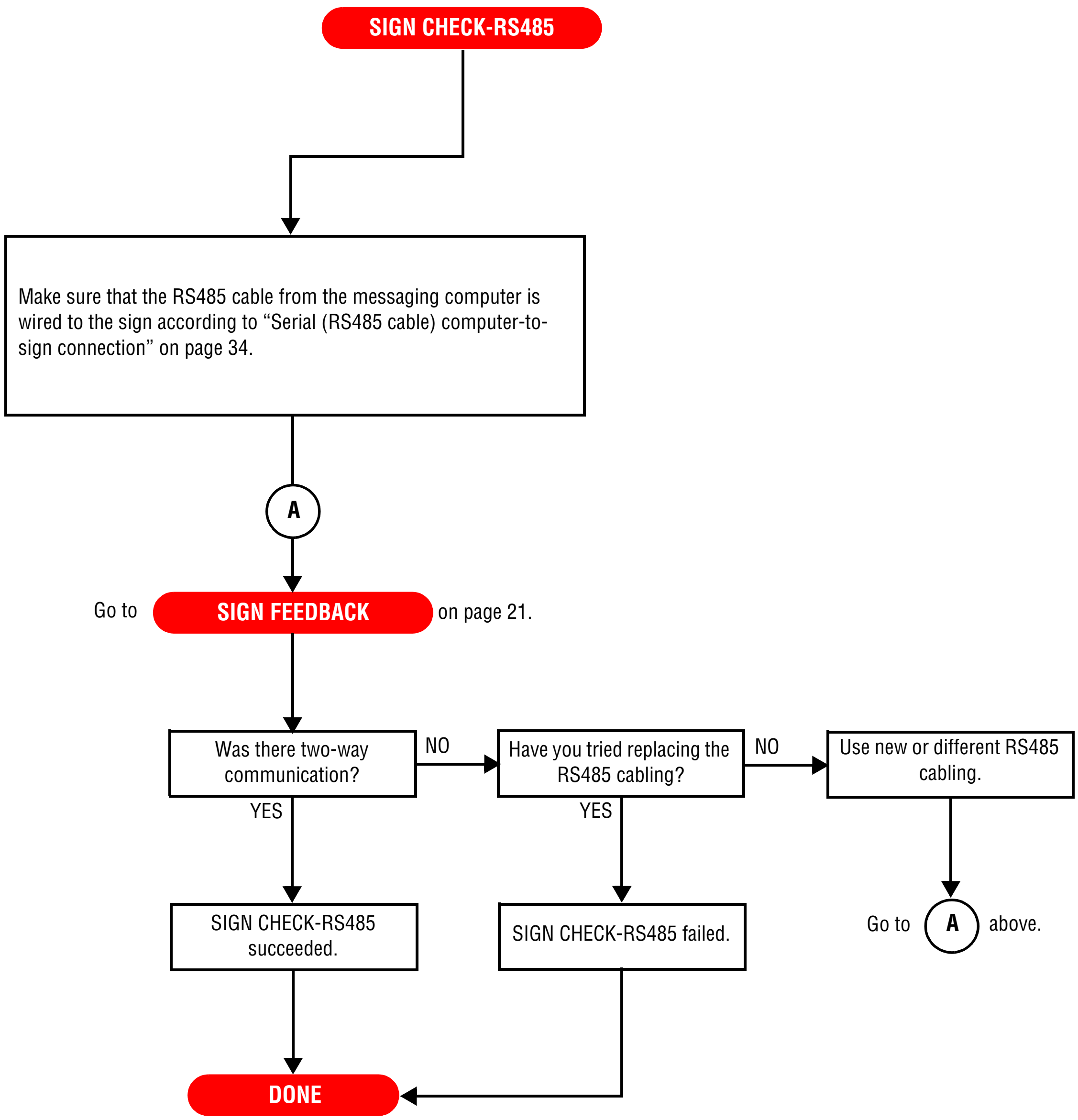


SIGN CHECK-RS485 procedure

Description:

- To determine if the sign’s RS485 cabling is working correctly.

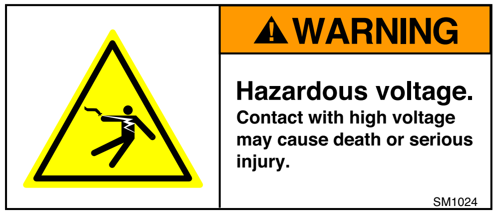


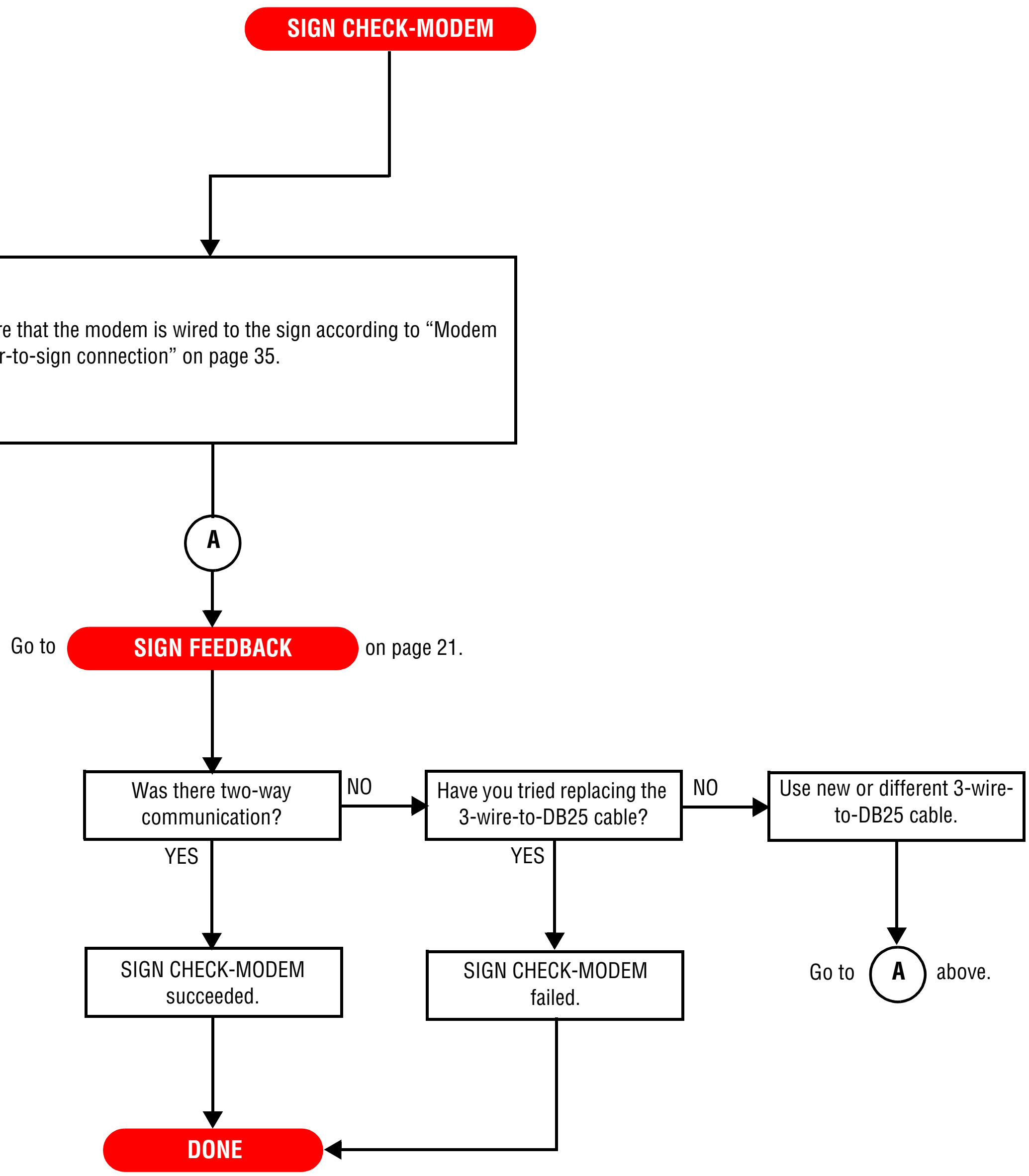


SIGN CHECK-MODEM procedure

Description:

- To determine if the sign’s modem and cabling are working correctly.

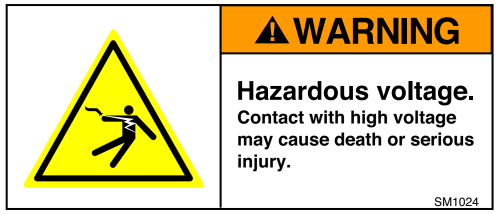


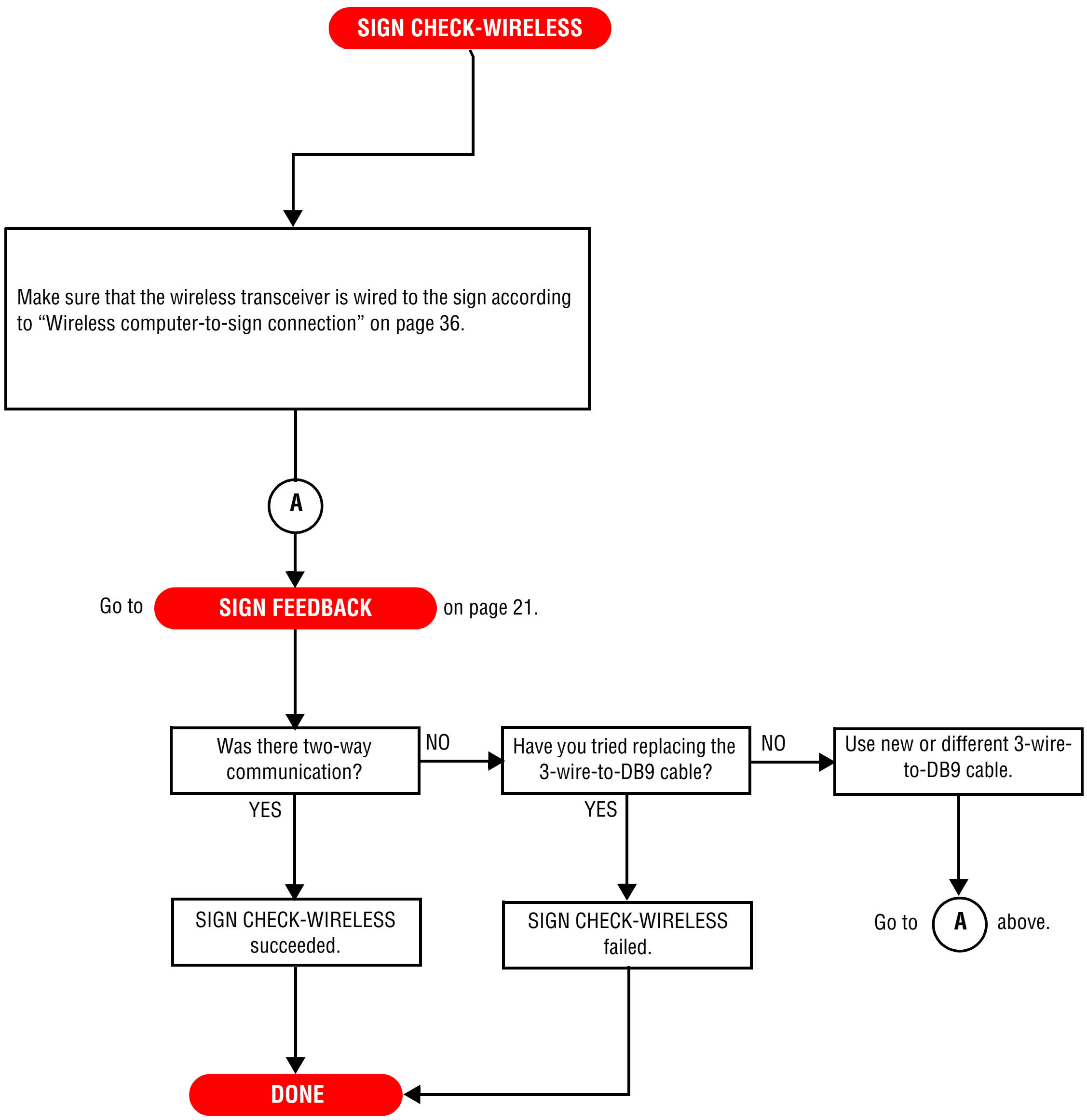


SIGN CHECK-WIRELESS procedure

Description:

- To determine if the sign’s wireless transceiver and cabling are working correctly.

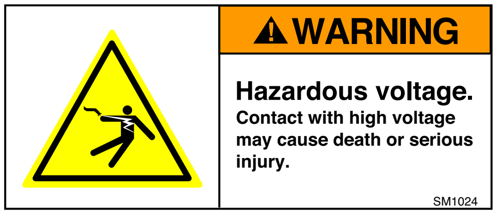


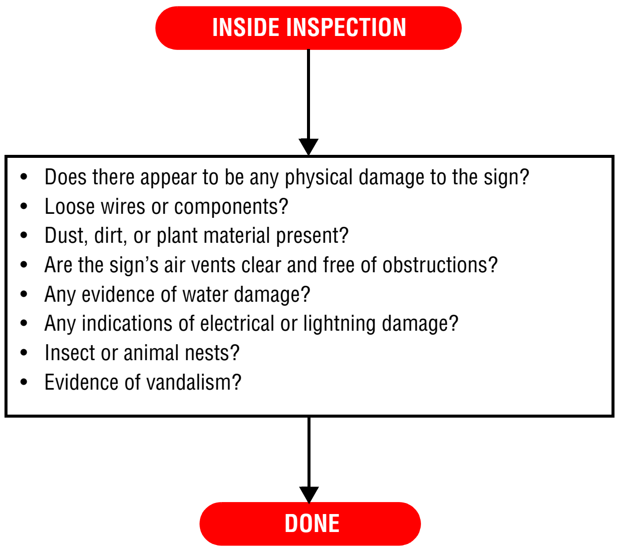


INSIDE INSPECTION procedure

Description:

- To see if there are any internal, visual indications of damage to the sign(s).

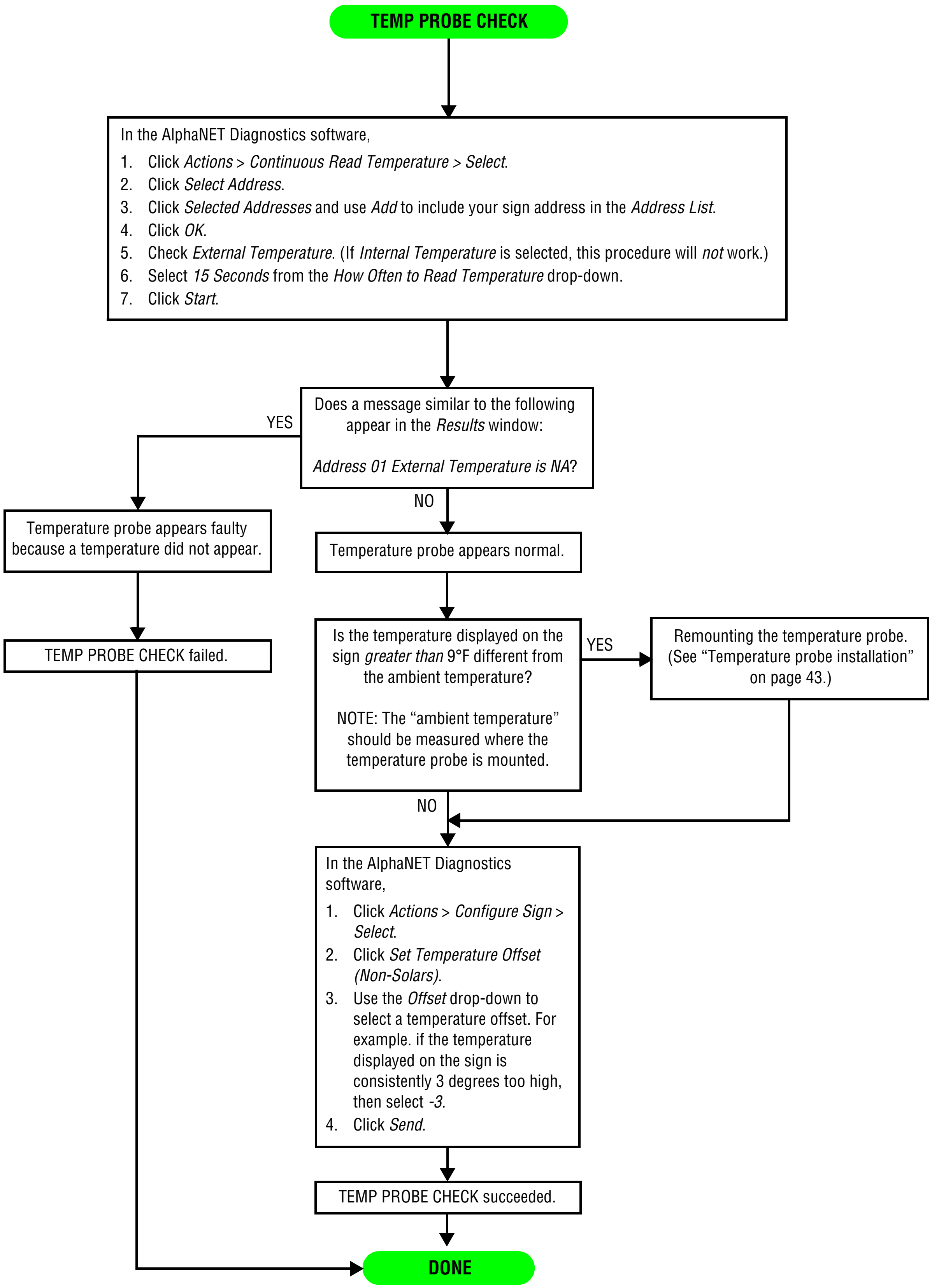




TEMP PROBE CHECK procedure

Description:

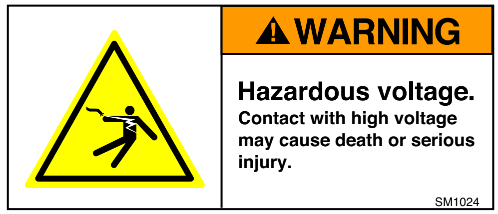
- To see if a temperature probe is operating correctly.

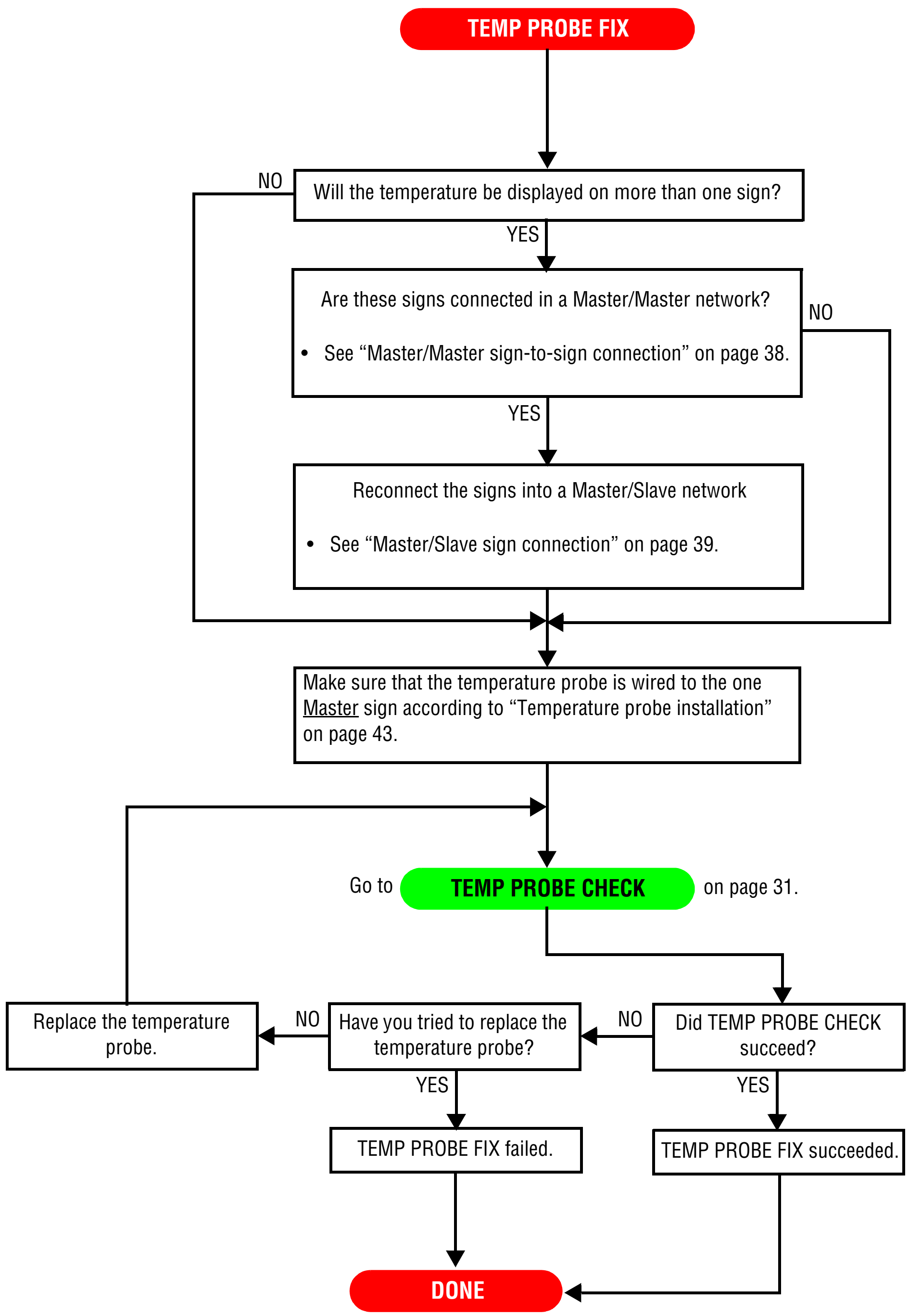


TEMP PROBE FIX procedure

Description:

- To correct a faulty temperature probe.





Sign networking

Computer-to-sign connection methods

There are a number of ways to connect an AlphaEclipse sign to a messaging computer:

- External connection box (RS232)
- External connection box (RS485) — used for an IR Message Loader
- Converter Box (RS485)
- Fiber optic
- Ethernet
- Modem
- Wireless

Computer-to-sign connection methods

Distance from computer to sign (feet)	External connection box (RS232)	External connection box (RS485)	Converter Box III (RS485)	Fiber optic[2]	Ethernet[3]	Modem[1]	Wireless[1,4]
up to 50	Yes	Yes	Yes	Yes	Yes	Yes	Yes
50 to 1000	No	Yes	Yes	Yes	Yes	Yes	Yes
1000 - 4000	No	Yes	Yes	Yes	Yes	Yes	Yes
4000+	No	No	No	Yes	Yes	Yes	No

NOTES:

[1] Installed and configured at the factory.

[2] For a fiber optic data connection, the maximum distance between the sign and computer is 2 miles (~10,000 feet).

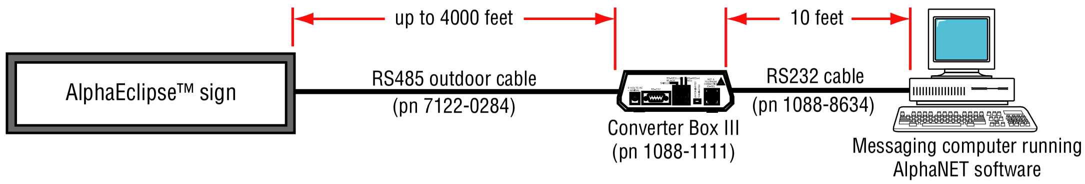
3 A sign cannot be connected directly to the Ethernet. A Lantronics MSS485-T Serial Server must be used as an interface.

[4] Maximum *indoor* range of a Locus OS2400-232 or a Zeus ZLRT2100 wireless transceiver is about 1500 feet. Actual operating range depends on local environment, including obstructions and electrical interference. The maximum *outdoor* range of a Locus OS2400-232 or a Zeus ZLRT2100 wireless transceiver is about 10,000 feet (about 2 miles). Actual operating range depends on local environment, including obstructions and electrical interference.

Serial (RS485 cable) computer-to-sign connection

Serial (RS485 cable) — AlphaEclipse 2500, 2600, and 3500 Series B

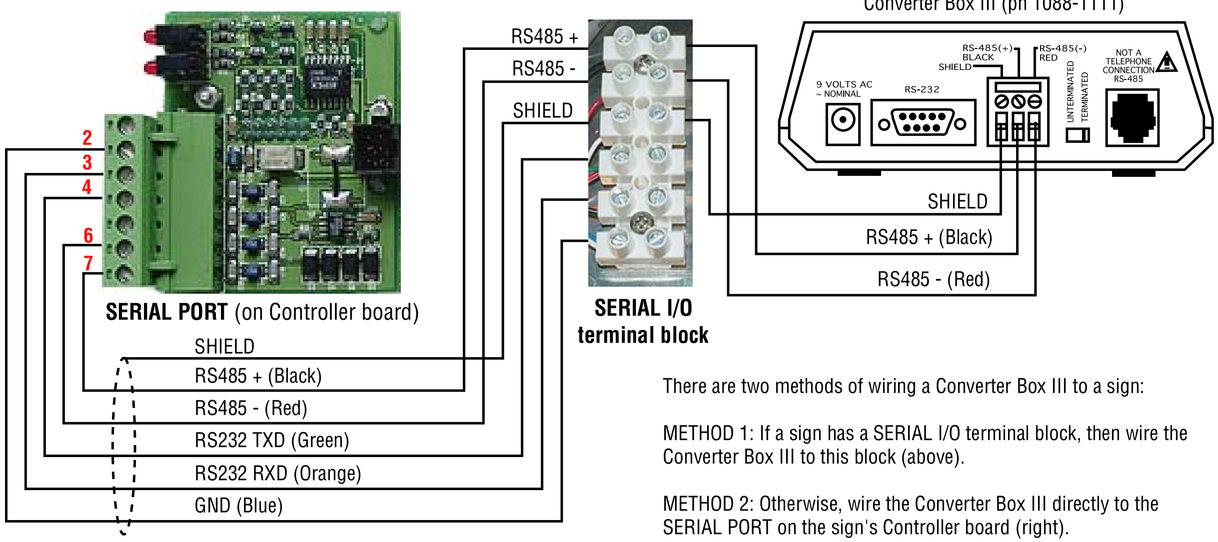
Overview



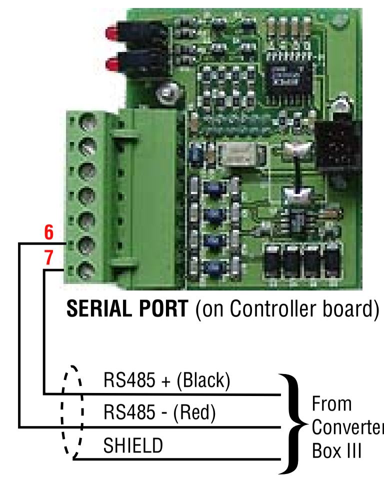
In order to display messages on a sign, the messaging computer must be connected to the sign, such as with a Converter Box III.

Wiring

METHOD 1 — SERIAL I/O terminal block connection:



METHOD 2 — SERIAL PORT connection:



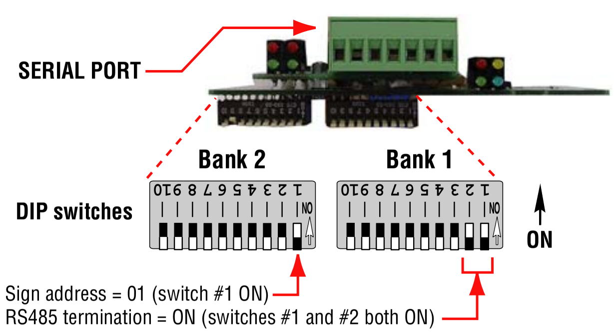
There are two methods of wiring a Converter Box III to a sign:

METHOD 1: If a sign has a SERIAL I/O terminal block, then wire the Converter Box III to this block (above).

METHOD 2: Otherwise, wire the Converter Box III directly to the SERIAL PORT on the sign's Controller board (right).

DIP switches

Controller board DIP switches:



Use the DIP switch settings shown on the left when connecting a single sign to a Converter Box III.

If more than one sign is connected to a Converter Box III, then the DIP switch settings will be different.
For example, only the Converter Box III and the last sign on the network need to be terminated. All other signs should have their two, RS485 termination DIP switches set to OFF.

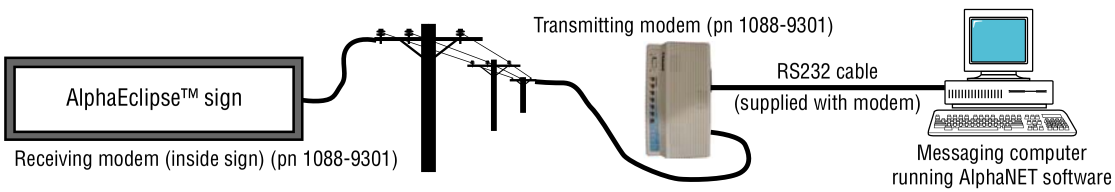
Also, each sign should have its own, unique sign address: the first sign should be set to sign address 01 (as shown), the second sign should be set to sign address 02, and so on.

DRAWING REVISION 4

Modem computer-to-sign connection

Modem connection — AlphaEclipse 2500, 2600, and 3500 Series B

Overview



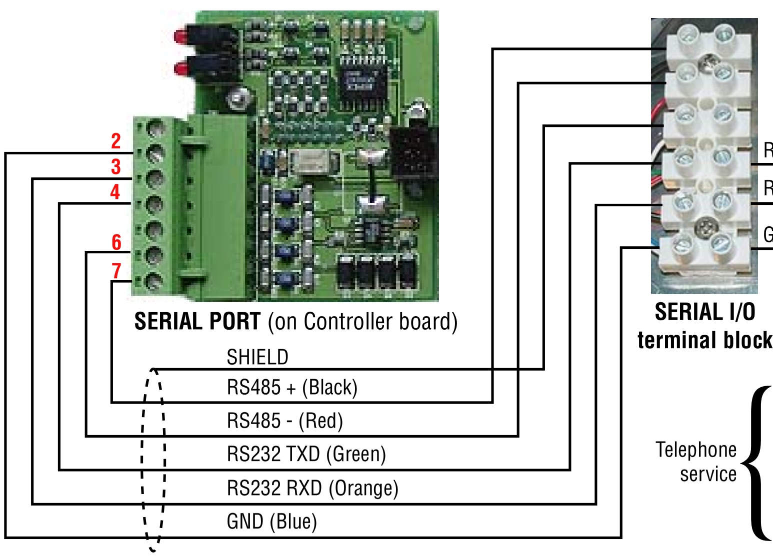
In order to display messages on a sign, the messaging computer must be connected to the sign, such as with a pair of telephone modems (a Transmitting modem attached to the messaging computer and a Receiving modem attached to a sign).

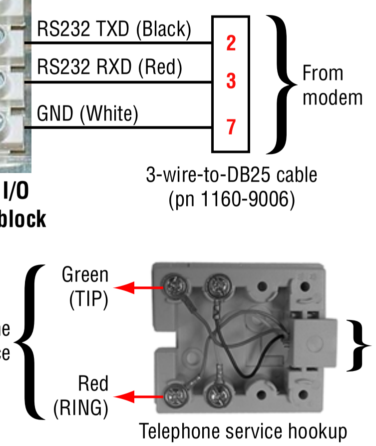
Modems can connect to a sign that is almost anywhere. However, a sign must have its own phone line.

Wiring

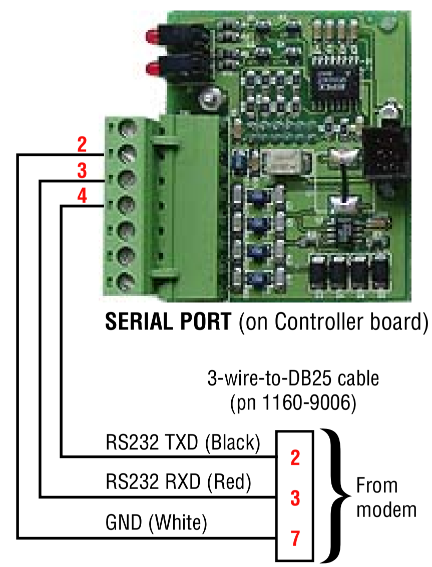
METHOD 1 — SERIAL I/O terminal block connection:

There are two methods of wiring the Receiving modem to a sign:
METHOD 1: If a sign has a SERIAL I/O terminal block, then wire the modem to this block (left).
METHOD 2: Otherwise, wire the modem directly to the SERIAL PORT on the sign's Controller board (right).



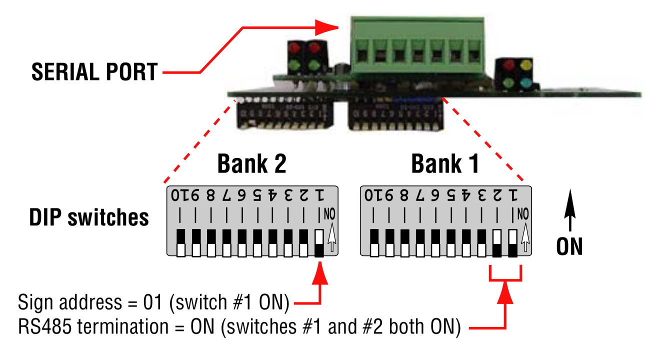


METHOD 2 — SERIAL PORT connection:



DIP switches

Controller board DIP switches:



Use the DIP switch settings shown on the left when connecting a single sign to a modem.

If more than one sign is connected to a modem, then the DIP switch settings will be different. For example, only the first and the last signs in the network need to be terminated. All other signs should have their two, RS485 termination DIP switches set to OFF.

Also, each sign should have its own, unique sign address: the first sign should be set to sign address 01 (as shown), the second sign should be set to sign address 02, and so on.

Modem DIP switch settings:



- Switch #1 = ON (Modem ignores DTR)
- Switch #2 = OFF (Result codes in words)
- Switch #3 = ON (Display result codes)
- Switch #4 = ON (Do not echo offline commands)
- Switch #5 = OFF (Auto answer on)
- Switch #6 = OFF (Carrier detect on)
- Switch #7 = OFF (Load user-defined setup from memory)
- Switch #8 = ON (Recognize AT commands)

Modem AT command setup string:

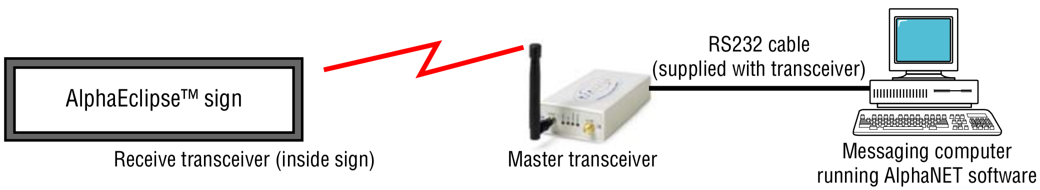
`AT&H0&R1&B1&N6&Y0&W0`

DRAWING REVISION 5

Wireless computer-to-sign connection

Wireless connection (Locus transceiver) — AlphaEclipse 2500, 2600, and 3500 Series B

Overview

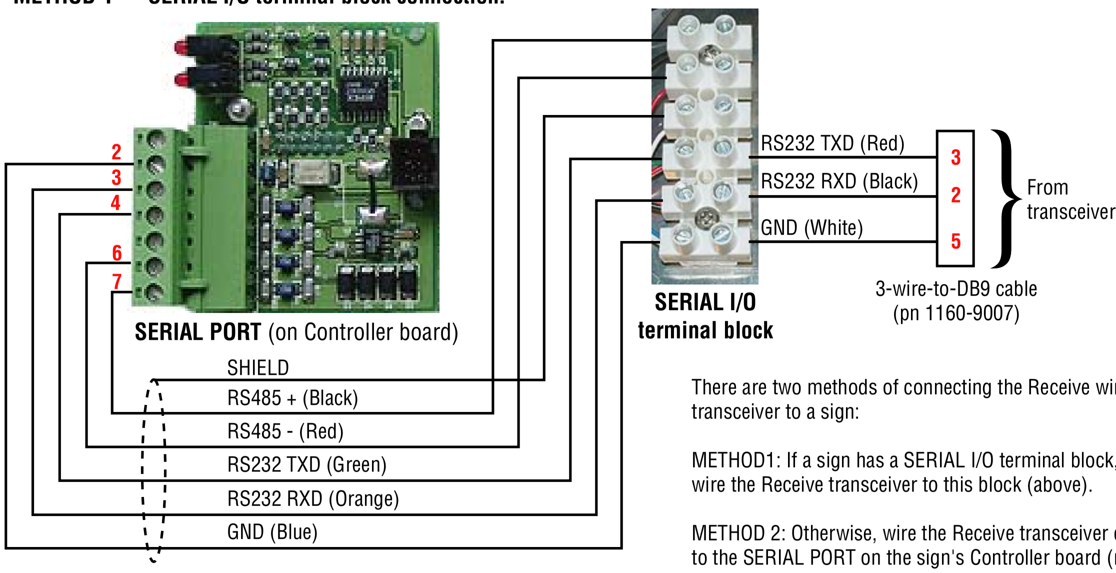


In order to display messages on a sign, the messaging computer must be connected to the sign, such as with a pair of wireless transceivers (a Master transceiver attached to the messaging computer and a Receive transceiver attached to a sign).

Wireless transceivers can connect to a sign that is up to 2 miles away. (Actual distance depends on the local environment, obstructions, electrical interference, and so on.)

Wiring

METHOD 1 — SERIAL I/O terminal block connection:

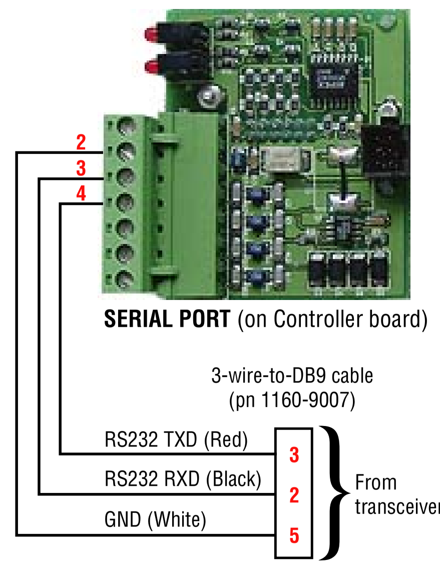


There are two methods of connecting the Receive wireless transceiver to a sign:

METHOD1: If a sign has a SERIAL I/O terminal block, then wire the Receive transceiver to this block (above).

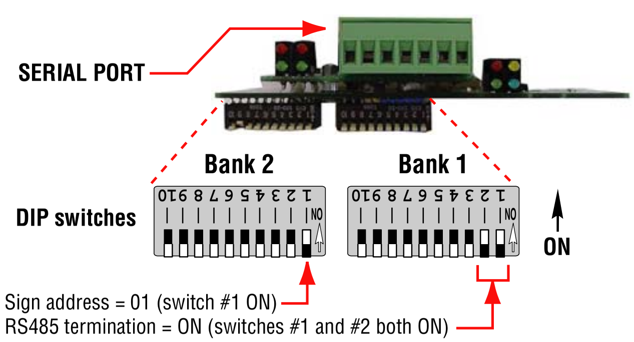
METHOD 2: Otherwise, wire the Receive transceiver directly to the SERIAL PORT on the sign's Controller board (right).

METHOD 2 — SERIAL PORT connection:



DIP switches

Controller board DIP switches:



Use the DIP switch settings shown on the left when connecting a single sign to a wireless transceiver.

If more than one sign is connected to a transceiver, then the DIP switch settings will be different. For example, only the first and the last signs in the network need to be terminated. All other signs should have their two, RS485 termination DIP switches set to OFF.

Also, each sign should have its own, unique sign address: the first sign should be set to sign address 01 (as shown), the second sign should be set to sign address 02, and so on.

DRAWING REVISION 4

Sign-to-sign connection methods

There are two ways to *interconnect* two or more AlphaEclipse signs:

- Master/Master
- Master/Slave

Sign-to-sign connection methods

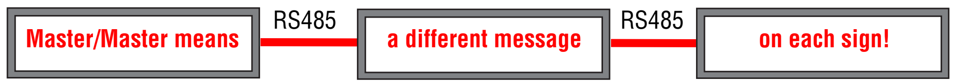
<table>
<tr><th></th><th>Description</th></tr>
<tr><td>Master/Master:</td><td>Signs connected this way can each display a unique message. Messages come into the first Master sign via an RS232 connection to a modem, wireless transceiver, or a computer.


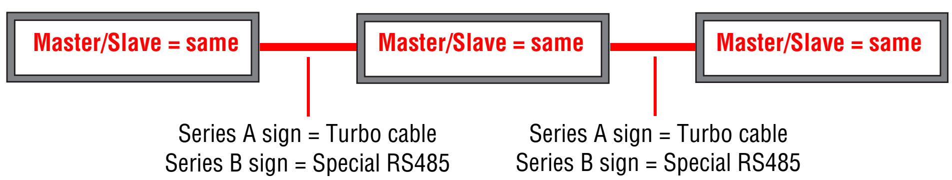
Figure 1: Master/Master sign-to-sign connection
NOTES:
• Messaging — a message can be displayed on all the signs in a Master/Master network by sending the message to sign address “00”. Also, if each sign in a Master/Master network has a unique serial address (for example, “01”, “02”, and so on), then a different message can be sent to and displayed on each sign.
• Temperature — to display the temperature on the signs in a Master/Master network, a temperature probe must be connected to each sign. If a sign attempts to display the temperature and does not have a temperature probe attached, the sign will display “ERR” in place of the temperature.
• Time — in Master/Master mode, the time is synchronized whenever a message is sent using the AlphaNET software.</td></tr>
<tr><td>Master/Slave:</td><td>Signs connected this way always display the same message at the same time. This is called simultaneous messaging and is often used when signs are mounted back-to-back. Messages come into the Master sign via an RS232 connection to a modem, wireless transceiver, or a computer.


Figure 2: Master/Slave sign-to-sign connection
NOTES:
• Messaging — a message will be displayed simultaneously on all the signs in a Master/Slave network by sending the message to sign address “00” or to all the sign addresses (“01”, “02”, and so on).
• Temperature — to display the temperature on the signs in a Master/Slave network, a temperature probe must be connected to the Master sign.
• Time — in Master/Slave mode, the time is synchronized at the top of every hour and also whenever a message is sent using the AlphaNET software.</td></tr>
</table>

Master/Master sign-to-sign connection

Master / Master sign connection — AlphaEclipse 2500, 2600, and 3500 Series B

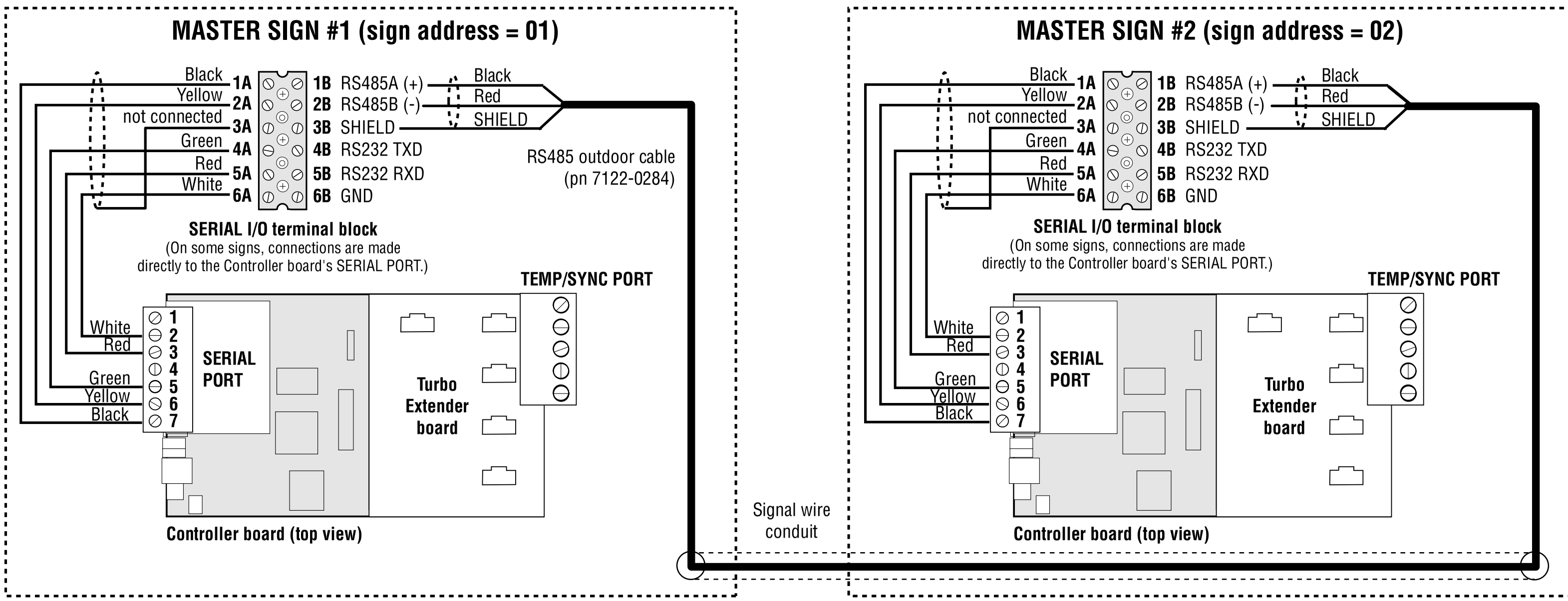
Overview

Two Series B signs connected as a Master/Master pair can each display a unique message — unlike a Master/Slave sign pair which always displays the same message at the same time.

In a Master/Master sign pair, a message can be displayed on Master sign #1 by sending the message to sign address "01" or displayed on Master sign #2 by sending the message to sign address "02".

Also, a message can be displayed on both Master signs by broadcasting the message to sign address "00".

Wiring



DIP switches



Master Sign #1:

Sign address = 01 (switch #1 ON)
Master/Slave mode = Master (switch #7 = OFF)
RS485 termination = ON (switches #1 and #2 both ON)
If this sign is connected to a Converter Box II, turn switches #1 and #2 both OFF.

Master Sign #2:

Sign address = 02 (switch #2 ON)
Master/Slave mode = Master (switch #7 = OFF)
RS485 termination = ON (switches #1 and #2 both ON)

DRAWING REVISION 4

Master/Slave sign connection

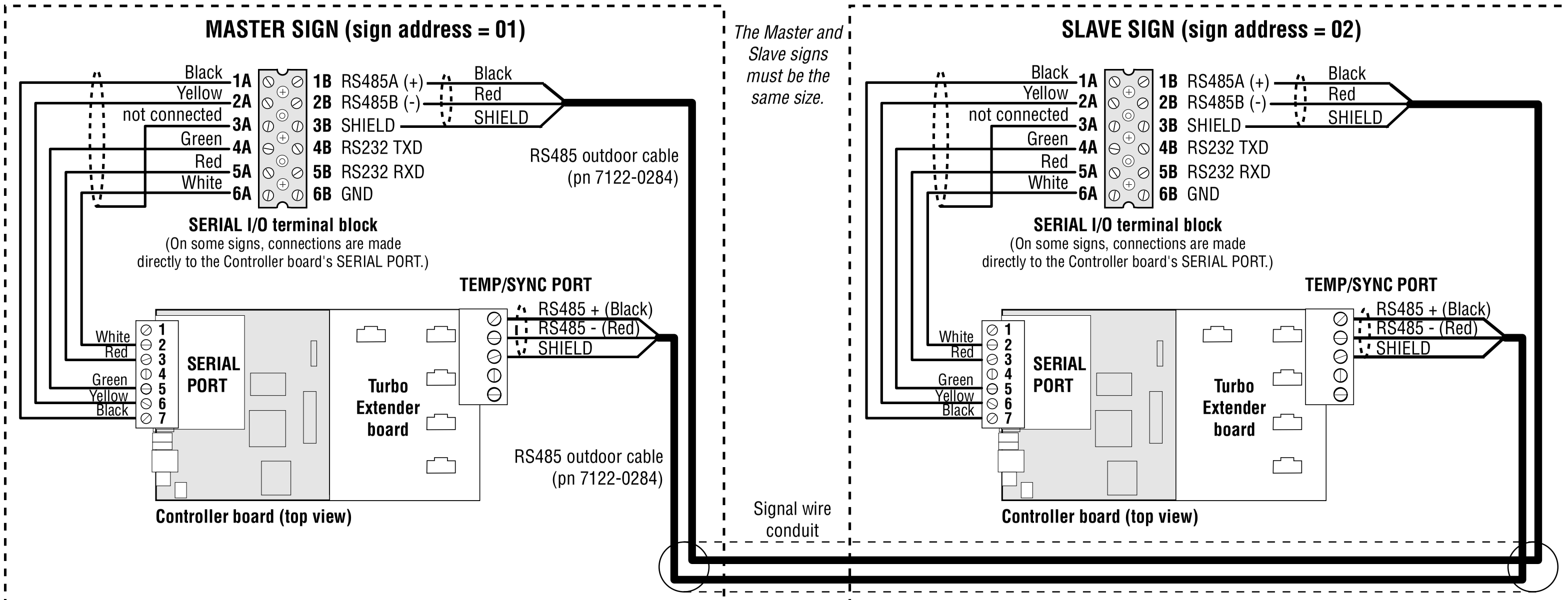
Master / Slave sign connection — AlphaEclipse 2500, 2600, and 3500 Series B

Overview

Two Series B signs connected as a Master/Slave pair will both display the same message at the same time. Messages should be sent to both the Master and Slave signs.

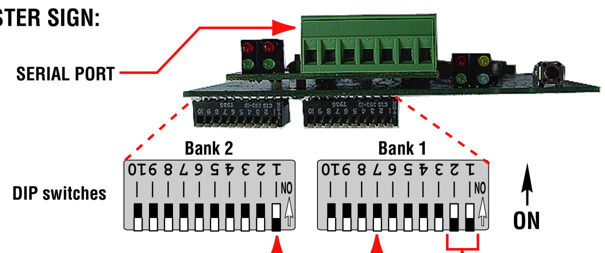
To do this, send all messages to sign address "00" or to *all* the sign addresses ("01", "02", and so on).

Wiring



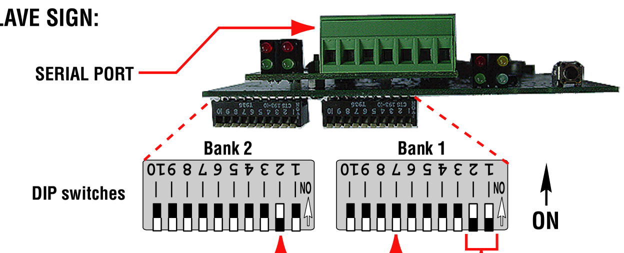
DIP switches

MASTER SIGN:



Sign address = 01 (switch #1 ON)
Master/Slave mode = Master (switch #7 = OFF)
RS485 termination = ON (switches #1 and #2 both ON)
If this sign is connected to a Converter Box III, then switches #1 and #2 both OFF.

SLAVE SIGN:



Sign address = 02 (switch #2 ON)
Master/Slave mode = Slave (switch #7 = ON)
RS485 termination = ON (switches #1 and #2 both ON)

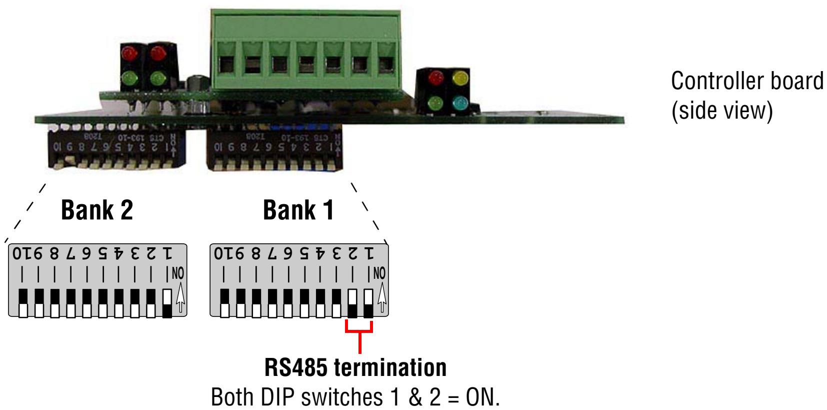
DRAWING REVISION 3

Termination

When signs are networked together using RS485 connections, EOL (End-Of-Line) termination must be taken into account so that the signs will function properly.

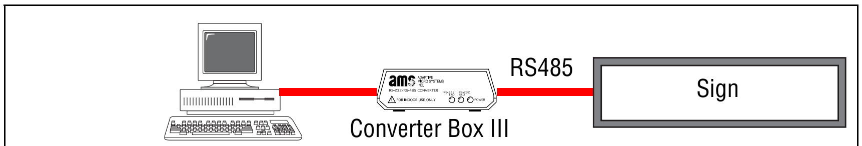
Improperly terminated signs may be unable to display messages.

Termination DIP switches



Termination examples

One-sign network using a Converter Box III:

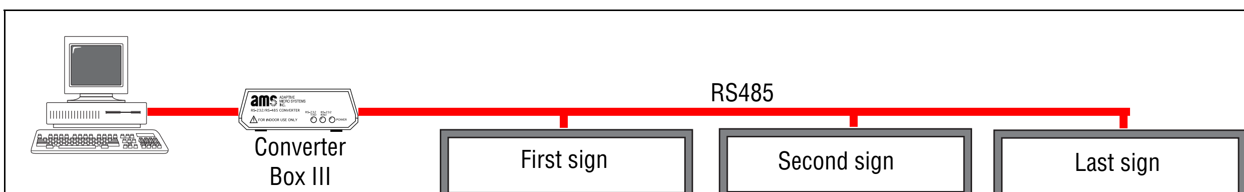


RS485 Devices:	Converter Box III (First device)	Sign (Last device)
RS485 Termination:	ON	ON

One-sign network using a sign with an internal modem or wireless transceiver:

	Sign with internal modem or transceiver
RS485 Devices:	Sign (First/Last device)
RS485 Termination:	ON

Termination on multiple signs using RS485 networking:



RS485 Devices:	Converter Box III (First device)	First sign (Middle device)	Second sign (Middle device)	Last sign (Last device)
RS485 Termination:	ON	OFF	OFF	ON

Appendix

Purpose

This manual is intended to help diagnose and repair common problems in AlphaEclipse 2500, 2600, and 3500 signs.

Revision history

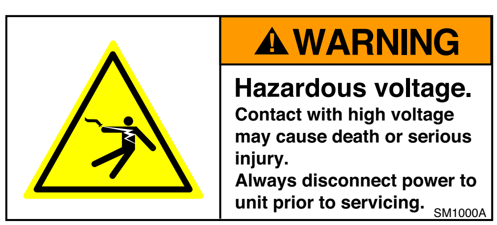
Revision	Date	Notes
9711-6023	November 10, 2003	Preliminary release.

Related documentation

Part #	Manual title	Description
9711-6019	AlphaEclipse 3500 Series B Service Manual	This manual is intended as a guide for maintenance and repairs of AlphaEclipse 3500 Series B signs considered field serviceable.
9711-6009B	AlphaEclipse 3500 Series A Service Manual	This manual is intended as a guide for maintenance and repairs of AlphaEclipse 3500 Series A signs considered field serviceable.
9711-6015F	AlphaEclipse 3500 Series B Installation Manual	This manual is intended as a guide for the initial installation of AlphaEclipse 3500 Series B signs.
9711-7001G	AlphaEclipse 2500/2600 Series Sign Installation Manual	This manual is intended as a guide for the initial installation of AlphaEclipse 2500 and 2600 Series signs.
9708-8081G	AlphaNET 3.0 User Manual	Describes the software used to send messages to an AlphaEclipse sign.

Safety

Warnings and cautions



Other warnings and cautions are posted in appropriate locations throughout this manual.

Preventing electrostatic discharge damage



This equipment contains components that may be damaged by “static electricity”, or electrostatic discharge. To prevent this from happening, be sure to follow the guidelines in Adaptive Tech Memo 00-0005, *“Preventing Electrostatic Discharge (ESD) Damage,”* available on our Web site at http://www.adaptivedisplays.com.

EMI compliance

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with installation guidelines, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

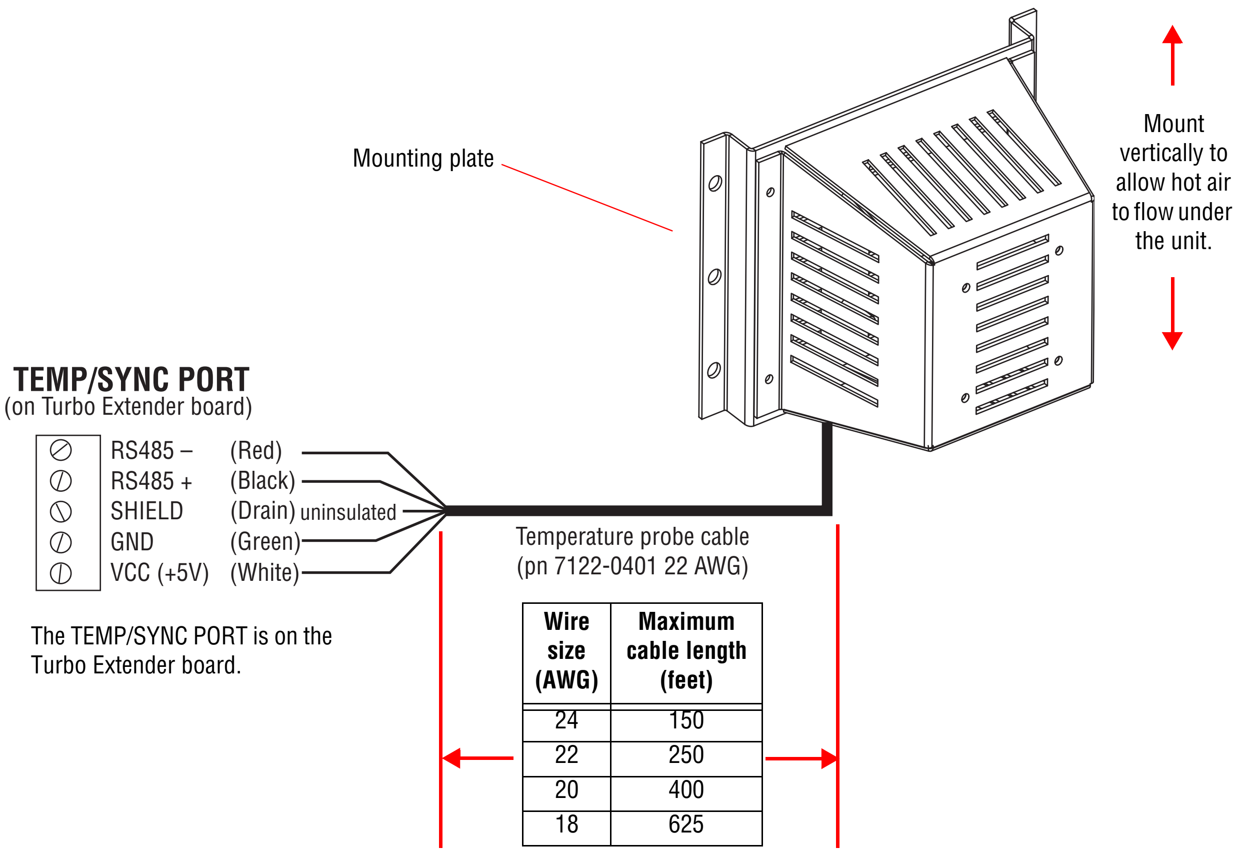
Temperature probe installation

Mounting guidelines

- A good place to locate the temperature probe is underneath the eaves of a protected overhang. Choose a location where air movement is not restricted by nearby walls or other obstructions. Mount the temperature probe housing so that convection currents, or rising hot air flows, are not blocked by the mounting plates.
- A location on the north side of a building, at least 6 feet off the ground, or other large structure will afford protection from the afternoon sun. Shield the probe from the effect of the direct sun, reflected heat, or any nearby sources of heat, such as chimneys, vents, or HVAC ducts.
- A light-colored background is preferable to a dark-colored mounting background. A location above vegetation is preferable to a location above asphalt or blacktop.

Installation

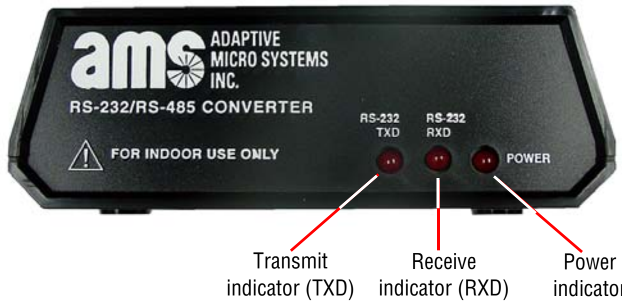
1. Mount the temperature probe vertically using the mounting plate on each side of the probe. The temperature probe can be mounted on either a flat or a curved surface.
2. Run the temperature probe cable into the sign through the signal wire conduit opening. Connect the temperature probe cable to the TEMP/SYNC PORT on the Turbo Extender board:



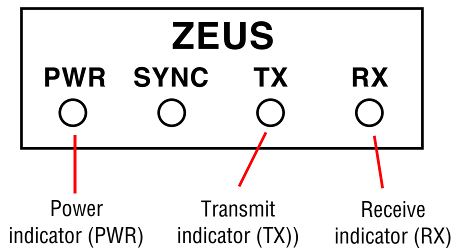
Wire size (AWG)	Maximum cable length (feet)
24	150
22	250
20	400
18	625

LED indicator locations

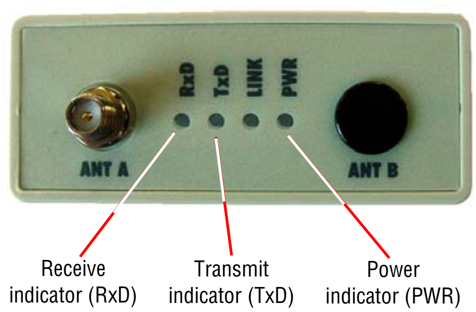
Converter Box III



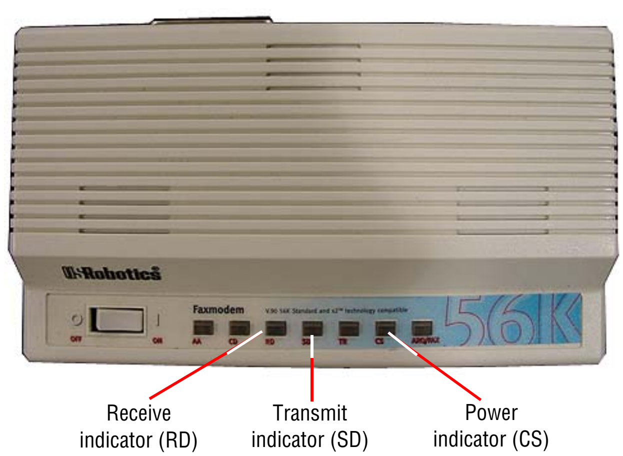
Zeus wireless transceiver



Locus wireless transceiver



US Robotics modems



NOTES

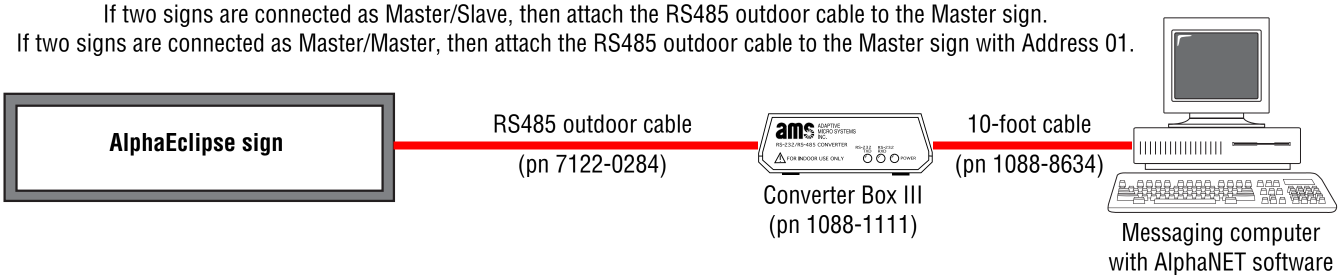
NOTES

NOTES

How is your sign connected to the messaging computer?

Serial (see page 34 for details)

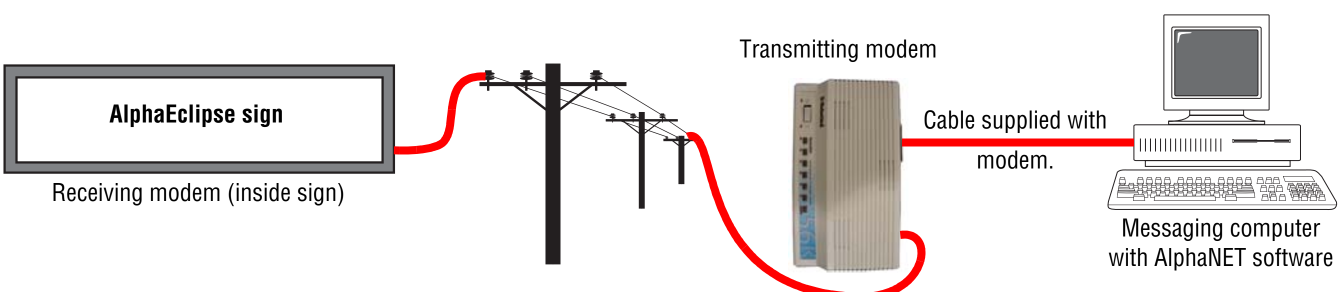
If two signs are connected as Master/Slave, then attach the RS485 outdoor cable to the Master sign.
If two signs are connected as Master/Master, then attach the RS485 outdoor cable to the Master sign with Address 01.



Wireless (see page 36 for details)



Modem (see page 35 for details)



MODEM PHONE #: ______________________